This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

+ *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.

+ *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.

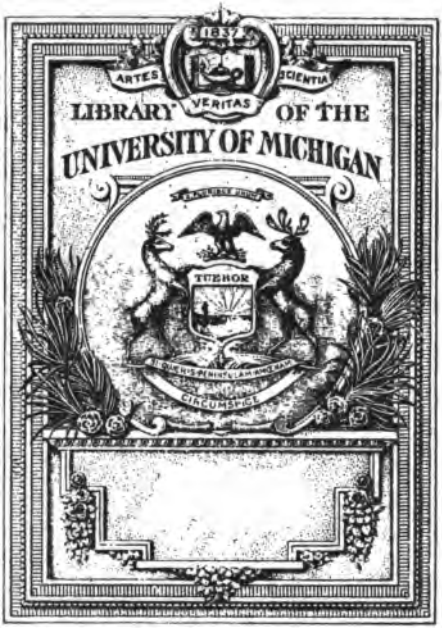
+ *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.

+ *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at `http://books.google.com/`

Digitized by Google



Digitized by Google

G10.5
1154
M5e

Digitized by Google

Digitized by Google

1791 1910

TRANSACTIONS

OF THE

NEW HAMPSHIRE MEDICAL SOCIETY

AT THE

ONE HUNDRED AND NINETEENTH ANNIVERSARY

HELD AT

CONCORD, MAY 12 AND 13, 1910

CONCORD, N. H.
IRA C. EVANS CO., PRINTERS
1910

Digitized by Google

Digitized by Google

NEW HAMPSHIRE MEDICAL SOCIETY.

OFFICERS FOR 1910—1911.

PRESIDENT.

ALONZO S. WALLACE, Nashua.

VICE-PRESIDENT.

GEORGE W. McGREGOR, Littleton.

SECRETARY.

D. E. SULLIVAN, Concord, term expires 1915.

TREASURER.

D. M. CURRIER, Newport, term expires 1915.

COUNCILORS.

Rockingham County—ABRAM W. MITCHELL, Epping, term expires 1911.

Strafford County—FORREST L. KEAY, Rochester, term expires 1911.

Coös County—FRANK W. EVANS, Coös, term expires 1912.

Carroll County—JOHN Z. SHEDD, North Conway, term expires 1912.

Digitized by Google

Belknap County—ALPHA H. HARRIMAN, Laconia, term expires 1913.

Grafton County—FREDERICK VON TOBEL, Lebanon, term expires 1913.

Cheshire County—HERBERT K. FAULKNER, Keene, term expires 1914.

Sullivan County—EMERY M. FITCH, Claremont, term expires 1914.

Merrimack County—PEARL T. HASKELL, Concord. term expires 1915.

Hillsborough County—ELLA B. ATHERTON, Nashua, term expires 1915.

TRUSTEES.

JOHN M. GILE, Hanover, term expires 1911.
SILAS M. DINSMOOR, Keene, term expires 1912.
JOHN W. PARSONS, Portsmouth, term expires 1913.

HOUSE OF DELEGATES.

Rockingham County—JOHN W. PARSONS, Portsmouth.
GEORGE H. GUPTILL, Raymond.

Belknap County—F. L. HAWKINS, Meredith.
FRANK B. EASTON, Laconia.

Cheshire County—JAMES A. CRAIG, Westmoreland.
SILAS M. DINSMOOR, Keene.

Hillsborough County—F. E. KITTREDGE, Nashua.
N. F. CHEEVER, Greenfield.
GEORGE S. FOSTER, Manchester.

Digitized by Google

Strafford County—JOHN H. BATES, East Rochester.
C. C. ROGERS, Farmington.

Merrimack County—G. C. BLAISDELL, Contoocook.
C. E. BUTTERFIELD, Suncook.

Coös County—G. H. MORRISON, Whitefield.
WLLLIAM H. LEITH, Lancaster.

Grafton County—EDGAR O. CROSSMAN, Lisbon.
CHARLES R. GIBSON, Woodsville.

Sullivan County—EMERY M. FITCH, Claremont.
SAMUEL R. UPHAM, Claremont.

Carroll County—E. W. HODSDON, Mountain View.
A. B. HOAG, Centre Sandwich.

BOARD OF MEDICAL EXAMINERS.

ARTHUR C. HEFFENGER, Portsmouth, term expires 1911.
GEORGE COOK, Concord, term expires 1912.
GEORGE H. SHEDD, North Conway, term expires 1913.
JOHN F. ROBINSON, Manchester, term expires 1914.
JAMES T. GREELEY, Nashua, term expires 1915.

DELEGATES.

To American Medical Association.

FERDINAND A. STLLINGS, Concord.

Alternate.

JOHN Z. SHEDD, North Conway.

To State Societies.

Maine—CHARLES A. MORSE, Newmarket.
JOHN H. BATES, East Rochester.

Digitized by Google

Massachusetts—ARTHUR F. SUMNER, Manchester.
GEORGE C. WILKINS, Manchester.

Vermont—IRA J. PROUTY, Keene.
WILLIAM H. LEITH, Lancaster.

New York—EDGAR O. CROSSMAN, Lisbon.
JOHN M. GILE, Hanover.

Rhode Island—NORMAN BAKER, Providence, R. I.
MINOT A. STEELE, Portsmouth, R. I.

Connecticut—GEORGE A. WEAVER, Warren.
NATHAN L. GRIFFIN, New London.

NECROLOGIST.

ELI E. GRAVES, Penacook.

ANNIVERSARY CHAIRMAN.

CHARLES S. LITTLE,* Laconia.

STANDING COMMITTEES.

Scientific Work.

D. E. SULLIVAN, Concord.
LOUIS W. FLANDERS, Dover.
JOHN M. GILE, Hanover.

Public Policy and Legislation.

JOHN M. GILE, Hanover.
JAMES T. GREELY, Nashua.
FERDINAND A. STILLINGS, Concord.
President and Secretary, *ex officio.*

Publication.

Secretary, President, and Treasurer.

* Resigned; James T. Greeley, Nashua, appointed.

Digitized by Google

Arrangements.

Merrimack County Society.

SPECIAL COMMITTEES.

History of Medicine in New Hampshire.

IRVING A. WATSON, Concord.
WILLIAM CHILD, Piermont.
JOHN W. PARSONS, Portsmouth.
GRANVILLE P. CONN, Concord.

Expert Medical Testimony.

FERDINAND A. STILLINGS, Concord.
EDGAR O. CROSSMAN, Lisbon.
GEORGE C. WILKINS, Manchester.
JOSEPH J. COBB, Berlin.
JOHN M. GILE, Hanover.

The next annual meeting of the society will be held at Concord, May 11 and 12, 1911.

All communications for the society should be addressed to the Secretary, D. E. Sullivan, M. D., Concord.

Digitized by Google

NEW HAMPSHIRE MEDICAL SOCIETY.

PROCEEDINGS
OF THE
ONE HUNDRED AND NINETEENTH ANNUAL MEETING.

MORNING SESSION, THURSDAY, MAY 12, 1910.

The meeting was called to order by the President, Frank Blaisdell of Goffstown.

Prayer was offered by Rev. Sydney B. Snow, Concord.

The chair appointed as a committee on the reception of delegates, Drs. Wilkins of Manchester, Staples of Franklin, and Cook of Concord; to examine patients, Drs. McGregor of Littleton, Larochelle of Manchester, and Staples of Franklin.

Three visiting delegates were present and introduced: G. Edward Buxton, M. D., of the Rhode Island Medical Society; Stephen H. Sears, M. D., and Ernest S. Jack, M. D., of the Massachusetts Medical Society. Dr. Buxton made the following remarks:

"I bring greeting and good-will from the Rhode Island State Medical Society.

"I have no speech to inflict upon you, no 'message to Garcia,' but bear kindest regards and an open-door invitation from your sister society.

"Some few days since, I sat by the side of one of our successful practitioners while we listened to a paper on 'Tuberculosis in Children.' The subject was handled exhaustively and the need of early diagnosis was pointed out; the method of detecting at first a diseased chest or gland, then the duty of the public to the school children—their physical examination—the separating of the weak

Digitized by Google

and affected from the well, the providing of open-air rooms, etc.

"When it was all over my friend said to me, 'I am now sixty-five years old; perhaps I am senile but I have seen so many fads and fancies come and go, so many enthusiasms dashed to oblivion, that all that talk makes very little impression on me.'

"The next day, in the American Medicine Monthly, I read the following editorial:

" 'The ineffectiveness of much disinfection is the point made by M. Comby, physician to the Paris Children's Hospital, and the foremost European apostle of the new crusade. He shows that the means used would not necessarily kill the organisms even if they were alive, and that measles and scarlet fever are really transmitted by convalescents or apparently healthy carriers. He even presents facts which show to his satisfaction that the desquamated scarlatinal skin is not nearly so often the carrier as we now think—indeed there are doubts as to its virulence at all—but even if it were dangerous the ordinary fumigations and fluids could not sterilize it. He is therefore preaching against what he believes to be ineffective disinfection, with the hope of starting a new and effective system of isolating the carrier.' Our own Chapin of Rhode Island has conclusively proved that far better results are obtained in diphtheria if we ignore things on which the bacilli promptly die anyhow, and devote our attention to the convalescents until we are sure they cease to be carriers. All this is of extreme importance, for it shows that we allow children to go back to school too soon, and permit convalescents generally to spread disease broadcast while the health authorities are spending time and money poisoning the dead germs on the house walls. When Chapin presented his evidence to the Section on Hygiene of the A. M. A. some years ago, he was amazingly misunderstood and denounced, but he is now coming into

Digitized by Google

his own. We can confidently predict as great a change in preventive methods in every disease as has occurred in yellow fever, but not until the exact ways of transmission are known. The sooner this is accomplished the better, for we have permitted an enormous amount of disease by our delay in recognizing the carriers and by wasting our time on the germs which had died.

"And yet who shall say the last word has been spoken? That all the enthusiasm of the past, its fads and fancies have not been simply froth and foam to be blown away by the next cool breeze of reason, we have come to know. I well remember my first visit to Kings College, London. As I entered the operating theatre my breath was nearly stopped by the strong fumes of the carbolic acid steam atomizer playing upon the patient while Professor Lister operated. This proved to be no iridescent dream—the vital truth of aseptic surgery was embodied and remained while the clouds that enveloped rolled away.

"We do not always remember the many difficulties he experienced in discovering the proper kind and use of ligatures, and how many animals he used in the long series of experiments he made before he felt justified in covering his silk and catgut and leaving it in the tissues of the closed wound of his hospital patient.

"And notwithstanding the disappointments that have come out of the brave promises given in the past two score years, how much—how very much—my dear doctor, has remained to give us cheer? Well do I remember my early experience with diphtheria—the days and nights of watching and struggle—tracheotomy with the agonizing hours spent in keeping the tube clear and the almost inevitable closing disaster and death. And how much we have to thank the laboratory and animal experimentation for that blessed boon—antitoxin! And in spite of ignorant opposition and misguided anti-vivisectionists, we have been permitted to perfect a serum and a method of using,

Digitized by Google

so that recently when one of our bright students at Brown University, Governor Hughes' only son, fell desperately ill with cerebrospinal meningitis and was taken to the Rhode Island Hospital, lumbar puncture was done, Flexner serum injected and his life was saved.

"A multitude of cats, rats, mice, and guinea pigs had been sacrificed, but not so many as the sheep daily slaughtered to be eaten by the opponents of scientific research.

"These animals had given their lives in experimental investigation, that the man, a life of great value to the world, might survive. I think I voice the sentiment of the medical profession in your sister society when I say it is essentially along optimistic lines and for the future good cheer."

Dr. Charles H. Dolloff, Chairman of Committee of Arrangements, reported for the committee.

"Immunity: with Special Reference to Vaccine Therapy," was given by Timothy Leary, M. D., of Boston, in an interesting and learned manner. Discussion was opened by Drs. H. M. Kingsford of Hanover and William H. Leith of Lancaster.

The President, Dr. Frank Blaisdell, Goffstown, read the annual address.

Afternoon Session—May 12.

The meeting was called to order at 2.30 o'clock by the President. Dr. Harry E. Mygatt, Nashua, read a paper on "Alcoholism," which was discussed by Dr. A. E. Brownrigg, Nashua.

Dr. William B. Coley of New York city presented "The Treatment of Inoperable Sarcoma with the Mixed Toxins of Erysipelas and Bacillus Prodigiosus—Indication and Results." Discussion followed by Drs. George C. Wilkins, Manchester; George W. McGregor, Littleton; and William H. Leith, Lancaster. At its close Dr. William B. Coley was unanimously recommended as an honorary member of the Society.

Dr. John H. Gleason, Manchester, read a paper, "A

Digitized by Google

Method of Anesthesia to be Employed in Operating on the Aged," which was discussed by Dr. Alonzo S. Wallace, Nashua, and Dr. George S. Foster, Manchester.

Dr. Thomas W. Luce, Portsmouth, read a paper, "Asthma, in Relation to the Nose." Discussion was opened by Dr. Charles C. Rogers, Farmington, and Dr. Frank E. Kittredge, Nashua.

Dr. George Cook, Concord, read a paper on "State Board Examinations," which was discussed by Dr. George H. Shedd, North Conway.

"Conservatism in Surgery," by Dr. Alpha H. Harriman, Laconia, was the last paper. This was discussed by Dr. F. A. Stillings, Concord.

FRIDAY, MAY 13.

Meeting called to order at 10 o'clock with Vice-President Wallace in the chair.

The first paper by Dr. H. H. Amsden, Concord, "The Use of Fat-Free Milk in Infant Feeding," was discussed by Drs. H. W. N. Bennett, Manchester, and Marion L. Bugbee, Concord.

Dr. John W. Staples, Franklin, read a paper, "Some Tendencies in Modern Medicine." This was discussed by Drs. A. W. Mitchell, Epping; James B. Woodman, Franklin; and Harry E. Mygatt, Nashua.

Dr. P. Challis Bartlett, Superintendent New Hampshire Sanatorium, read a paper on "Incipient Pulmonary Tuberculosis; Diagnosis and Treatment," which was discussed by Drs. John M. Gile, Hanover, and Samuel R. Upham, Claremont.

Dr. John H. Bates, East Rochester, read a paper, "Some Evolutionary Aspects of the Vermiform Appendix," which was discussed by Dr. John H. Neal, Portsmouth.

"Chronic Kidney Disease" was the last paper, presented by Dr. Frank B. Easton, Laconia.

Digitized by Google

The Secretary made the report of the House of Delegates, and Dr. John W. Parsons read the report of the Trustees.

President-Elect Alonzo S. Wallace, Nashua, briefly returned thanks for the honor conferred on him.

On motion adjourned to May 11 and 12, 1911.

Digitized by Google

MINUTES OF THE HOUSE OF DELEGATES.

The House of Delegates met at 8.30 P. M., May 11, 1910, in Room 8 at the Eagle Hotel, and was called to order by the President of the Society, Dr. Frank Blaisdell, Goffstown.

The chair appointed as a Committee on Credentials, Drs. F. E. Kittredge and F. B. Easton, and they reported that they had received thirteen credentials.

The roll was called by the Secretary which showed the following members present:

JOHN W. PARSONS, Rockingham.
CHARLES C. ROGERS, Strafford.
F. E. KITTREDGE, Hillsborough.
JOHN H. BATES, Strafford.
W. H. LEITH, Coös.
C. R. GIBSON, Grafton.
E. O. CROSSMAN, Grafton.
D. M. CURRIER, Treasurer, Newport.
F. B. EASTON, Belknap.
F. L. HAWKINS, Belknap.
EMERY M. FITCH, Sullivan.
S. M. DINSMOOR, Cheshire.
G. S. FOSTER, Hillsborough.
C. E. BUTTERFIELD, Merrimack.
FRANK BLAISDELL, President.
D. E. SULLIVAN, Secretary.
ALONZO S. WALLACE, Vice-President.
GEORGE H. GUPTILL, Rockingham.
GEORGE C. BLAISDELL, Contoocook.
E. W. HODSDON, Mountain View.

Digitized by Google

REPORT OF SECRETARY.

One of the principal events of the year was the visit, early in October, of Dr. J. N. McCormack of Kentucky, Chairman of the Committee on Organization of the American Medical Association, and I do not know of any one thing in recent years that has left such a profound impression on the minds of both the profession and the laity as the sentiments he expressed. Addressing the doctors in the day and the public at night, in his characteristic forceful manner, he delighted large audiences at Keene, Claremont, Woodsville, Berlin, Laconia, Concord and Manchester. Our only regret was that other sections of the state were not as favored as those.

Under date of October 27, the Chicago office wrote me in reference to his trip, saying: "He spoke most enthusiastically of the meetings held in New Hampshire, as well as the high quality of the medical profession, and said that he met the most intelligent and representative audiences in your state that he encountered anywhere."

As was anticipated, the realization of the radical changes in our constitution and by-laws has not been accomplished without some misunderstandings. To-day, however, most of the county officers and members have a pretty definite conception of the essentials and with a little more time and patience, with forbearance, the new order will be working smoothly and satisfactorily, giving us in this state a cohesive, systematically-organized force in medicine far beyond anything of the past and destined to be a powerful factor for good in the years to come. As tending to hasten the consummation of our highest hopes, I would suggest that you advise the component societies to have more frequent meetings; to combine the offices of Secretary and Treasurer, with a salary commensurate to the duties; and to have January 1 the beginning of their fiscal year.

Digitized by Google

The President appointed Dr. E. H. Currier, Manchester, Charles D. Howard, B. S., Concord, and Dr. Charles H. Bowker, Washington, D. C., delegates to the decennial Pharmacopœial Convention to be held at Washington, May 10, 1910.

Acting under your instructions the names of Dr. James T. Greeley, Nashua, and Dr. William E. Reed, Nashua, were sent to the Governor and Council for appointment to the State Board of Medical Examiners, and Dr. James T. Greeley was appointed for the ensuing term of five years to succeed himself.

It was voted to accept the report of the Secretary.

TREASURER'S REPORT.

To the New Hampshire Medical Society:

Your Treasurer begs leave to make the following report for the year ending May 1, 1910:

DR.

1909.				
May	1.	To cash on hand as per last report . . .	$146.84	
	7.	cash from D. E. Sullivan	140.00	
	14.	cash from sale of dinner tickets . . .	157.50	
	14.	cash from exhibitors .	73.00	
1910.				
May	1.	To cash from dues for the year, those in arrears and for 1910 . .	1,558.00	
		Amount		$2,075.34

CR.

1909.				
May	15.	By cash paid S. M. Dinsmoor, Trustee .	$9.31	

Digitized by Google

May 22.	By cash paid John F. Webster, use of hall .	$25.00
22.	cash paid J. W. Madden, orchestra .	18.00
22.	cash paid Phenix Hotel Company. . .	190.25
June 4.	cash paid Marshall D. Cobleigh . . .	3.60
28.	cash paid John Wendell, sundries . . .	6.00
30.	cash paid Argus & Spectator, printing .	2.25
July 14.	cash paid Rumford Printing Co., Trans.	457.60
Oct. 14.	cash paid Ira C. Evans Co., printing . .	3.10
Nov. 27.	cash paid D. E. Sullivan, Secretary, salary, etc. . . .	227.05
1910.		
Feb. 23.	cash paid S. H. Edes, printing . . .	1.65
Mar. 7.	cash paid E. L. Glick, blanks . . .	3.00
7.	cash paid Rumford Printing Co. . .	2.00
April 18.	cash paid St. Louis Button Co. . . .	20.60
23.	cash paid S. H. Edes, circulars . . .	1.75
26.	cash paid Ira C. Evans Co., supplies . .	13.25
29.	cash paid D. M. Currier, Treas., salary, postage, and assistant .	74.18

Digitized by Google

April 29.	By cash paid D. E. Sullivan, salary clerk and supplies	$268.19	
	Amount paid out		$1,326.78
May 4.	Cash on hand and carried forward		$748.56

Respectfully submitted,

D. M. CURRIER,

Treasurer.

CONCORD, May 12, 1910.

We have this day examined the accounts of D. M. Currier, Treasurer, and find the same correctly cast and properly vouched.

JOHN W. PARSONS,
S. M. DINSMOOR,

Trustees.

The Chair appointed as a committee to consider various communications that had been received during the year, Drs. Crossman, Bates, and Leith, and it was suggested that they report during the forenoon of May 12.

The Treasurer also reported the names of members who had failed to pay their dues for three years.

On motion of Dr. Kittredge, it was voted that those members who were in arrears for three years shall be notified by the Secretary that they will be dropped from the Society unless they made payment within thirty days from the date of notice.

It was voted to accept the report of the Treasurer.

Report of Committee on Public Policy and Legislation, read by Dr. Gile.

The Committee on Public Policy and Legislation have no accomplished legislation to report, as there has been no legislative session during their term in office.

The committee would recommend that this Society pass

Digitized by Google

resolutions recommending the passage of the Owen bill now before Congress, looking to the establishment of a department of public health, and that the Secretary forward these resolutions to our Congressmen and Senators.

The committee would further recommend that the Society urge upon the next Legislature the passage of a bill for the provision and distribution of free antitoxin.

We would delegate to our successors the somewhat ungracious task of re-writing our medical registration laws, and would urge upon them prompt action to get the matter in line for successful issue at the next session of our General Court.

J. M. GILE,
JAMES T. GREELY,
F. A. STILLINGS,
FRANK BLAISDELL,
D. E. SULLIVAN.

It was voted to lay Dr. Gile's report on the table and to call it up again in the course of the session.

At a meeting of the Committee on Affiliation of the New Hampshire Medical Society, held at The Weirs, September 2, 1909, there were present of the committee: Drs. W. T. Smith, C. R. Walker and George Cook. Dr. J. M. Gile, who was present, was invited to confer with the committee, and the following recommendations for changes in the by-laws of the State Society were unanimously adopted.

First—The fiscal year of the State Society should be the calendar year. This will enable County Societies to get all their reports in at least thirty days before the annual meeting of the State Society.

Second—Change the time of election of officers in the House of Delegates to five o'clock of the first day of the meeting.

Third—To empower the President to fill any vacancy in the House of Delegates by temporarily appointing any

Digitized by Google

member present from that county where the vacancy exists.

Fourth—Quorum to do business in the House of Delegates shall be a majority of the entitled delegates.

GEORGE COOK,

For the Committee.

It was voted to lay Dr. Cook's recommendations on the table and take them up to-morrow.

REPORT OF THE COMMITTEE ON HISTORY OF THE NEW HAMPSHIRE MEDICAL SOCIETY.

Following the last meeting of the New Hampshire Medical Society, when it was voted to amend a previous vote and to authorize the committee to extend the history of the Society to the year 1854, a conference was held, and it was agreed that the written transactions of the Society and of the Council from the organization of the Society in 1791 to the year 1854, inclusive, would constitute the only accurate, exact, and complete history of the Society itself, and that it would be advisable, for historical and other purposes, to print the same in the original phraseology, spelling, punctuation, etc., of the manuscript records.

With this end in view, your committee submitted typewritten copies of a few pages of the transactions to publishing houses for bids for printing an edition of one thousand copies. The lowest offer received was from The Rumford Press, Concord, as follows:

"We will print and bind 1,000 copies of the proposed volume of the Records of the New Hampshire Medical Society, in the same size type and type page, and the same paper, as the current volume of Proceedings, with similar binding, as follows:

Price per page . . .	$1.05
Binding per copy . . .	.25

Author's changes, 40 cents per hour."

Digitized by Google

This bid was approved by the President and Secretary of the Society, and the work is now in press.

Your committee at one time entertained the idea that the work could be completed in season for distribution at the present meeting of the Society; but we found that the work of copying, which requires not only the most careful following of capitalization, punctuation and spelling, but also the deciphering of almost illegible words, required a great deal of time; and the process of type-setting and proof-reading is considerably less rapid than in ordinary work—hence, the volume is not ready for distribution. It will be carried to completion at as early a day as is practicable under the circumstances.

Your committee would respectfully suggest to the House of Delegates the desirability of authorizing the full and complete indexing of the work, and of giving them authority to include, in an appendix, a list of the members of the New Hampshire Medical Society from its organization to the present time, giving date of admission and residence at the time—if the committee think it advisable so to do after taking into consideration the size of the volume, etc.

Respectfully submitted,

IRVING A. WATSON,

Chairman.

It was voted to accept the report of Dr. Watson.

The Treasurer suggested that the names of the members of the Society be included up to the time of 1854 and omit the names of those who have joined since.

On motion of Dr. Crossman it was voted that the matter be left in the hands of the special committee to use their best judgment.

REPORT OF COMMITTEE ON SCIENTIFIC PROGRAM.

We regret to say that some of the County Societies had nothing to offer for the program this year. If the fiscal

Digitized by Google

year be made the calendar year, the work of this Committee would be better arranged. It is our wish to have all sections of the state represented, but this is not possible where the material is not forthcoming.

Dr. William B. Coley of New York, and Dr. Timothy Leary of Boston, have kindly consented to give papers in addition to the excellent contributions of our own members.

D. E. SULLIVAN,
LOUIS W. FLANDERS,
JOHN M. GILE.

REPORT OF COMMITTEE ON PUBLICATION.

Pursuant to your instructions there were printed 600 copies of the transactions, and 550 bound. The Rumford Printing Company was awarded the contract on competitive bid at eighty-seven cents per page of printing and twenty cents per volume for binding.

The work was promptly and satisfactorily done.

D. E. SULLIVAN,
FRANK BLAISDELL,
D. M. CURRIER.

The Committee on Expert Medical Testimony, through its Chairman, Dr. Gile, offered the following report:

"This committee was appointed to act as a Conference Committee together with a like committee from the New Hampshire Bar Association. After a good deal of effort, the President of that association was persuaded to attend a meeting of our committee. The joint committees have had a meeting and went into a most lengthy discussion of the subject. A sub-committee was appointed to collate more of the facts and information which were available on the question of special experts called by the court instead of the present system. The members from the Bar Association expressed many grave doubts as to the possibility

Digitized by Google

of such a law under our present constitution and whether or not it required constitutional change before such law could be passed. The legal members of that committee have agreed to look up that point in detail, and be ready to report in regard to it at a future meeting; so the best your committee can do is to report progress, but no definite action."

On motion of Dr. Kittredge, it was voted to continue the Committee on Expert Medical Testimony.

On motion of Dr. Parsons, it was voted that the place of the next meeting be Concord, N. H., and that the time be May 11 and 12, 1911.

Dr. Dinsmoor discussed the matter of whether, or not, membership in any medical society, county or state, should be a voluntary or an involuntary act. He proposed the following amendment to the constitution: For section 2, Article IV, substitute, "The members of this society shall consist of all physicians who have signed the constitution and by-laws. Members of county medical societies shall be eligible to membership when they sign their names to the constitution and by-laws, and pay the fee of $2."

On motion of Dr. Foster, it was voted to lay the proposed amendment on the table for one year.

Dr. Cook addressed the House of Delegates, as follows:

"Dr. Gile's report upon Public Policy and Legislation suggests that the committee be authorized to rewrite our medical registry law. Perhaps he has forgotten something about it. At the time we had our meeting at The Weirs of the Committee on Affiliation, there was a committee of the three societies in the state which represented different boards, together with such committee as we could get on Public Policy and Legislation of the three societies. We went over the matter of the rewriting of our law and talked in a general way, and certain things were adopted. It was voted at that time to employ an attorney, somebody

Digitized by Google

who was competent to rewrite that law, and it was suggested that Judge Chase of Concord be that one, and it was delegated to me to see that that law was redrawn by Judge Chase. It has been, and we have got a very complete law. We are going to have a committee meeting to-morrow, and the Committee on Public Policy and Legislation will be invited to come in with us and go over that work, and then when they agree upon it, the representatives of the three societies in the state will work in harmony. It will be printed, together with all the suggestions that we have to make, and sent to every physician in this state, particularly to county societies, so that they may get informed. When we get ready to present it to the next legislature, we will go to work and see if we cannot get a modern law that will meet most of the requirements. I do not suppose it is possible with the three so-called schools of medicine to get just exactly what we would like to have. The law is rather long or I would have brought it with me to-night. I can come sometime to-morrow to the House of Delegates if you would like to hear it read. We shall have a committee meeting of the State Boards to-morrow, to which the Legislative Committees of the three societies are invited to be present and go over this matter in order that they may all agree upon it. It is one that Judge Chase says will be constitutional."

Dr. Dinsmoor inquired as to the reason for the discontinuance of the printing of the post-prandial exercises in the annual report, and the Secretary replied that the great expenses did not seem to warrant it. Other members were of the same opinion, and on the suggestion of Dr. Gile, the matter was referred to the Committee on Publication.

Dr. Currier suggested that the Society have a retired list for those members who had been unfortunate and were not in a position to pay their dues. This matter was discussed by Dr. Blaisdell and Dr. Parsons. Dr. Cook suggested

Digitized by Google

that instead of a regular retired list, the Treasurer report each year the names of those who were unable to pay their dues, so that the society could act on those names, and Dr. Wallace and Dr. Gile were of the same opinion.

Dr. Parsons moved that an additional alphabetical list of members be printed in the Annual Report. After considerable discussion by Drs. Currier, Parsons, Sullivan, and Leith, it was so voted.

Upon inquiry of Dr. Cook as to how many had sent in their list of members and had paid and were entitled to be represented, Dr. Sullivan replied that every county had paid.

On motion of Dr. Kittredge, it was voted to adjourn to 9 A. M., May 12, 1910.

THURSDAY, 9.30 A. M.

Meeting called to order by the President, and a roll-call showed a quorum present:

Rockingham.—John W. Parsons, Portsmouth.

Belknap.—F. B. Easton, Laconia.

Cheshire.—S. M. Dinsmoor, Keene.

Hillsborough.—Frank E. Kittredge, Nashua; George S. Foster, Manchester.

Strafford.—John H. Bates, East Rochester; Charles C. Rogers, Farmington, N. H.

Merrimack.—Clarence E. Butterfield, Suncook.

Coös.—W. H. Leith, Lancaster.

Grafton.—Edgar O. Crossman, Lisbon; Charles R. Gibson, Woodsville.

Sullivan.—Emery M. Fitch, Claremont.

Digitized by Google

Frank Blaisdell, Goffstown, President.
Alonzo S. Wallace, Nashua, Vice-President.
D. E. Sullivan, Concord, Secretary.
D. M. Currier, Newport, Treasurer.

On motion of Dr. Kittredge it was voted to change the fiscal year to coincide with the calendar year.

On motion of Dr. E. O. Crossman, it was voted to amend Chapter V, Section 3, of the By-Laws by substituting "at five o'clock P. M., of the first day" for the words "on the morning of the last day."

On motion of Dr. George S. Foster, Chapter IV, section 3, was amended by adding, "The President is authorized to appoint alternates from a county delegation to temporarily fill a vacancy in such county."

On motion of Dr. F. B. Easton, Chapter IV, section 3, was amended by inserting "entitled" before "delegates" in first line.

The President appointed the following Committee on Nominations:

Rockingham County—John W. Parsons.
Belknap County—F. B. Easton.
Cheshire County—S. M. Dinsmoor.
Hillsborough County—Frank E. Kittredge.
Strafford County—John H. Bates.
Merrimack County—Clarence E. Butterfield.
Coös County—W. H. Leith.
Grafton County—Edgar O. Crossman.
Sullivan County—Emery M. Fitch.
Carroll County—E. W. Hodsdon.

Dr. John W. Parsons presented the report of the Trustees.

Digitized by Google

TRUSTEES' REPORT.

CONCORD, N. H., May 13, 1910.

The Trustees of the New Hampshire Medical Society submit the following report:

The Bartlett fund, on deposit in the Portsmouth Savings Bank, bank book No. B 21,110, amounted at last report to . . .	$2,358.16
January, 1910, interest	71.27
Total	$2,429.43

Three hundred and fifty-two dollars and eleven cents of this sum is by the terms of the bequest a permanent fund, leaving $2,077.32 to the order of the Society.

The Pray fund, on deposit in the Strafford Savings Bank at Dover, bank book No. A 42, amounted at last report to . . .	$1,202.61
May 22, 1909, withdrawn for prize awarded to George S. Graham, M. D. . . .	100.00
	$1,102.61
January, 1910, interest	38.91
Total	$1,141.52

The original sum was $1,000, the increase only of which can be expended solely for prize essays.

The Society has also on deposit in the Merrimack River Savings Bank, Manchester, bank book No. 26,934, the sum of $960.25; in the New Hampshire Savings Bank, Concord, bank book No. 35,696, the sum of $278.67; in the Portsmouth Trust and Guarantee Company, bank book No. 12,813, the sum of $1,003.89; total amount in the care of the Trustees, $5,813.76, of which $4,461.65 can be expended by the Society.

Digitized by Google

Three essays were offered for the Pray prize. The prize of one hundred dollars offered last year has been awarded to George S. Foster, M. D., of Manchester, for the essay, entitled, "Preventive Medicine and Its Relation to Foreign Immigration."

The income of the Pray fund will not permit the offer of the usual prize for 1911.

A prize of one hundred dollars from the Pray fund is offered to the members of the Society for the year 1912, concerning which a circular will be issued.

JOHN W. PARSONS,
S. M. DINSMOOR,
Trustees.

Dr. Parsons and President Blaisdell paid sincere tributes to the memory of Dr. William T. Smith, a trustee deceased during the year.

Dr. E. O. Crossman, from the Special Committee to Consider Communications, reported that the proposition of the Vermont Medical Monthly to print our proceedings be referred to the Committee on Publication; that the communication from the Public Health Education Committee be referred to the Secretaries of the State and County Societies, and recommended definite action by the House of Delegates in the matter of United States Senate bill No. 6,049, and presented the following resolutions:

Whereas, Sanitary science has demonstrated its ability to protect and to prolong human life, we believe that the diversified Federal activities for the public health interests of this great country, those now existing and those that could be inaugurated for the further protection of human life, should be assembled under a Department of Public Health, therefore

Resolved, That we approve the provisions of Senate Bill No. 6,049, "To Establish a Department of Public Health," and we respectfully ask our Senators and Representatives

Digitized by Google

in Congress to give due consideration to the voice of the New Hampshire Medical Society herein expressed.

Resolved, That the Secretary of this Society be directed to transmit a copy of the foregoing preamble and resolution to each of the New Hampshire Senators and Representatives in Congress.

On motion, the report of the committee was unanimously adopted.

After considerable discussion, participated in by nearly all present, it was unanimously voted, on motion of Dr. George S. Foster, that the House of Delegates advise more frequent meetings of County Societies, and that their offices of Secretary and Treasurer be combined, with a salary commensurate to the duties. The Secretary was directed to notify the County Societies of this action.

REPORTS OF COUNCILLORS.

SULLIVAN COUNTY.

To the House of Delegates, New Hampshire Medical Society:

It gives me pleasure to report to you the results of the work done in Sullivan County during the past year.

The old Sullivan County Medical and Surgical Society has been a dead issue since July, 1907, the last meeting being held in Claremont. This neglect to hold meetings allowed the Society to lapse and Sullivan County was without representation at the last meeting of the New Hampshire Medical Society.

The State Society, desiring to have a working society in Sullivan, as in all other counties, took a special vote, "that the House of Delegates instruct the councilor of Sullivan County to make every effort during the coming year to reorganize and secure a working society in Sullivan County." Acting upon this motion, the councilor talked with different physicians in the county and found them desirous of forming a working society. Through

Digitized by Google

the efforts of a few of these men a programme was arranged, and a meeting called for August 10. There were present at the meeting sixteen physicians of the county and three guests.

Dr. Frank Blaisdell, President of the New Hampshire Medical Society, was present and gave a very interesting and helpful talk on reorganization, pointing out in a very pleasing manner the needs, both to the state and to ourselves of having a working society in Sullivan County.

Dr. Gile, of Hanover, was also present, and gave a very interesting talk on, "Surgery of the Prostate Gland."

It was voted that the old Sullivan County Medical and Surgical Society be discontinued and that a new Society, called the Sullivan County Medical Society, be formed, adopting the Constitution and By-Laws laid down by the New Hampshire Medical Society for use of the component County Societies.

The Society was organized with sixteen members. The spirit of the meeting was, that any physician practicing in Sullivan County could become a member by sending his name, together with his yearly dues, to the Secretary. It was voted to hold, at least, two meetings each year, one in Claremont during the first week of January, and the other in Newport during the first week of July.

A special meeting of the Society was held in Claremont, October 5, to meet Dr. J. N. McCormack, of Bowling Green, Ky. The regular meeting was held in January. There was a good attendance at all the meetings.

Acting upon the plan explained by Dr. McCormack, of taking post-graduate work, the physicians in Claremont have held weekly meetings during the winter and discussed the subjects outlined by the American Medical Association for a post-graduate course of study. These meetings have been well attended and the discussions of subjects freely entered into by all.

There are at present twenty-four active members in the

Digitized by Google

Society, and a feeling of harmony prevails throughout the county.

Respectfully submitted,

EMERY M. FITCH.

ROCKINGHAM COUNTY.

The annual, in November, at Hotel Rockingham, Portsmouth, was the only meeting held last year by the County Society. The attendance was very good. Routine business was attended to, after which several interesting papers were presented which were freely discussed.

Several new names were added to our list of members. A few physicians, yet, have not seen fit to affiliate with us.

Harmony and professional co-operation characterize the year's efforts.

A. W. MITCHELL.

MERRIMACK COUNTY.

Four successful meetings were held by the Society the past year.

In April the Margaret Pillsbury General Hospital entertained the members, and Dr. Amsden read a most profitable paper on "Fat-Free Milk in Infant Feeding."

By invitation of the President, Dr. John W. Staples, the midsummer meeting was holden at Sanborn Hall, Franklin.

Dr. Elliot P. Joslin, of Boston, was present as the guest of the Society, and presented a most scientific paper on "The Present Treatment of Diabetes Mellitus."

The October meeting was held in Concord, and was addressed by Dr. J. N. McCormack, of Kentucky, chairman of the Organization Committee of the American Medical Association.

The annual meeting was held January 11, 1910, at the Eagle Hotel in Concord.

Digitized by Google

The usual order of business was followed.

In the election of officers, Dr. Arthur K. Day was chosen President, and Dr. P. T. Haskell, Secretary and Treasurer, for the coming year.

Our active membership is eighty-four. Four have joined the Society the past year and we have lost one by death.

The average attendance at the meetings was thirty-one.

Respectfully submitted,

CHARLES R. WALKER.

GRAFTON COUNTY.

As usual, we have held two regular meetings during the year; one in June and one in December. They have been very interesting and well attended, considering the topography of the county which makes it difficult for all of the physicians to get to any one place just for a one-session meeting. It is expected, in the future, to hold the June meeting in a different place each year, hoping in that way to come in touch with the men who would not go to a distance.

I think in this county it would be advisable to hold quarterly sectional meetings and then the two general meetings as at present. We had one special meeting when Dr. McCormack, of Kentucky, gave the Society a very interesting and instructive talk, followed at night by a public meeting. The latter was not as well attended, either by the profession or the laity, as was wished.

The loss of Dr. W. T. Smith is keenly felt by each one, as it is by every member of the profession in the state where he had been so active.

F. VON TOBEL.

Digitized by Google

HILLSBOROUGH COUNTY.

The Hillsborough County Medical Society now consists of one hundred and fifteen members.

During the past year there have been two deaths, namely, Dr. Clarence M. Dodge, of Manchester, and Dr. Charles B. Hammond, of Nashua.

The annual meeting, held at Manchester this spring, was well attended and several interesting papers were read. Among other matters brought up for discussion at this meeting was the statement that three men were practicing medicine illegally in Manchester; two Greeks, and an optician, who were using the title of Doctor.

The Secretary corresponded with the Manchester authorities with results that were entirely satisfactory.

As a whole the physicians of Hillsborough County are well represented in the County Society, and interested and harmonious in the Society organization and work.

JAMES T. GREELEY.

REPORT OF THE DELEGATES TO DARTMOUTH MEDICAL COLLEGE.

Mr. President and Members of the House of Delegates of the New Hampshire Medical Society:

Your delegates to the Dartmouth Medical School for the year 1910 proceeded to Hanover in March last, and on the twenty-fourth of that month examined twelve candidates for graduation; passing ten.

Though the class was small this year, the quality of the candidates was most satisfactory. The delegates from the Vermont Medical Society, Henry C. Tinkham, M. D., and Marshall C. Twitchell, M. D., failing to appear, your delegates assumed entire charge of the examinations, and divided the branches of medicine and surgery between them.

Digitized by Google

At the conclusion of the examinations your delegates inspected the equipment of the Medical School, especially that of the new medical building in which is situated the fine pathological laboratory, and were much pleased with the up-to-date means possessed by the college for instructing its students.

All the graduating class have hospital appointments, which shows how highly graduates from this college are appreciated by the various hospitals of the country.

The address of the senior delegate was delivered, and the presentation of diplomas made by President Nichols in the banquet room at the conclusion of the dinner of the faculty, delegates, and graduates; a departure from the old methods, which brings the new graduate directly into the fold of his brethren.

Respectfully,

A. C. HEFFENGER,
E. O. CROSSMAN.

REPORT OF BOARD OF MEDICAL EXAMINERS.

Last year's report, as printed in the transactions, covered the annual meeting, May 13, 1909.

Aside from this meeting a special meeting of the Joint Boards was held last winter, and a rough draft of the proposed new Medical Practice Act was read but no action was taken thereupon, final decision being reserved for the Committee on Public Policy and Legislation.

It was the unanimous vote of the examiners to allow applicants for licensure to voluntarily submit to an examination of a practical nature in the State Laboratory. At the last two examinations this permission was taken advantage of by nearly every candidate, Dr. Duncan marking the results and forwarding them to the examiners. These marks, however, did not affect, directly, the percentages attained.

Digitized by Google

The courtesy and kindness of the officers of the State Laboratory are thoroughly appreciated by the examiners.

There have been two examinations held during the past year, according to the following dates:

July 2 and 3, '09. Examined 28, 10 failed.
January 4 and 5, '10. Examined 10, 2 failed.

JAMES T. GREELEY,
Secretary, State Board Medical Examiners.

It was moved by Dr. William H. Leith, and voted, that the annual dues to the State Society be two dollars, regardless of the time of year a member joins the County Society.

On motion of Dr. Emery M. Fitch, it was voted that the Secretary furnish to each County Secretary certificates of membership to be given to members joining the Society.

On motion, adjourned to 5 P. M.

THURSDAY, 5 P. M.

Met according to adjournment, with the President in the chair. On roll-call a quorum was declared present. Drs. George C. Blaisdell and E. W. Hodsdon signed the register.

The President appointed Dr. Richard E. Wilder as alternate for Dr. George H. Morrison.

Dr. Emery M. Fitch, for the Committee on Nominations, made the following report:

President—A. S. Wallace, Nashua; A. H. Harriman, Laconia; G. H. Shedd, North Conway.

Vice-President—George W. McGregor, Littleton; J. W. Staples, Franklin; I. G. Anthoine, Nashua.

Secretary for five years—D. E. Sullivan, Concord.

Treasurer for five years—D. M. Currier, Newport.

Councilor, Merrimack County for five years—P. T. Haskell, Concord.

Councilor, Hillsborough County for five years—E. Blaylock-Atherton, Nashua.

Trustee for one year (vacancy)—J. M. Gile, Hanover.

Digitized by Google

Trustee for three years—J. W. Parsons, Portsmouth.

Member Board of Medical Examiners—A. C. Heffenger, Portsmouth.

Alternate—A. W. Mitchell, Epping.

Alternate Delegate to American Medical Association—John Z. Shedd, North Conway.

DELEGATES TO STATE SOCIETIES.

Maine—C. A. Morse, Newmarket; J. H. Bates, Rochester.

Massachusetts—A. F. Sumner, Manchester; George Wilkins, Manchester.

Vermont—W. H. Leith, Lancaster; I. J. Prouty, Keene.

New York—E. O. Crossman, Lisbon; J. M. Gile, Hanover.

Rhode Island—Norman Baker, Providence, R. I.; Minot A. Steele, Portsmouth, R. I.

Connecticut—George A. Weaver, Warren; N. L. Griffin, New London.

Necrologist—E. E. Graves, Penacook.

Anniversary Chairman—C. S. Little, Laconia.

STANDING COMMITTEES.

Scientific Work—D. E. Sullivan, Concord; Louis W. Flanders, Dover; John M. Gile, Hanover.

Public Policy and Legislation—John M. Gile, Hanover; James T. Greeley, Nashua; Ferdinand A. Stillings, Concord; President and Secretary, *ex officio*.

Publication—President, Secretary, and Treasurer.

Arrangements—Merrimack County Society.

The Secretary was authorized to cast one ballot for Alonzo S. Wallace, of Nashua, for President, and having attended to that duty, Alonzo S. Wallace was declared elected President for the ensuing year.

Digitized by Google

On motion of Dr. Charles R. Gibson, a committee of three was appointed to receive, sort, and count ballots for Vice-President.

Whole number of votes cast . . .	12
Necessary for a choice	7
George W. McGregor, of Littleton . .	8
John W. Staples, of Franklin . . .	4

and George W. McGregor, having a majority of the votes cast, was declared elected Vice-President for the ensuing year.

On motion of Dr. Frank E. Kittredge, the President was delegated to cast one vote for Dennis E. Sullivan for Secretary for five years, and he was declared elected.

The Secretary was authorized to cast one vote for David M. Currier for Treasurer for the ensuing five years, and he was declared elected.

On motion of Dr. George S. Foster, the Secretary cast one ballot for the remainder of the ticket, as reported by the committee, and declared them elected.

On motion of Dr. William H. Leith, the Secretary cast one ballot for John Z. Shedd for alternate delegate to the American Medical Association.

REPORT OF NECROLOGIST.

The following members died during the year:

1909.

J. W. Pray, East Northwood, June 19.
Clarence M. Dodge, Manchester, June 19.
William T. Smith, Hanover, September 17.
Leander J. Young, Haverhill, Mass., October 27.
Charles F. George, Goffstown, November 3.
C. H. Burnham, Jefferson, November 4.
Henri T. Fontaine, Pembroke, November 25.
Henry R. Parker, Dover, December 29.

1910.

Joseph N. Letourneau, Laconia, January 13.
Charles F. McGahan, Bethlehem, February 15.

Digitized by Google

C. B. Hammond, Nashua, April 8.
Haven Palmer, Plymouth, April 8.
On motion of Dr. D. M. Currier, the report was accepted.

REPORT OF COUNCIL.

The meeting of the Councilors was held May 12 at 3 o'clock P. M., Dr. C. R. Walker, Chairman, with the following members in attendance: Drs. C. R. Walker, Merrimack; A. W. Mitchell, Rockingham; F. W. Evans, Coös; H. K. Faulkner, Cheshire; A. H. Harriman, Belknap; F. L. Keay, Strafford

Dr. Harriman was elected Secretary pro tem.

The charges preferred against several members from Keene for consulting with a physician of North Walpole, doing fraternal society work by contract, was referred to the Councilor of Cheshire County to settle by his own influence or with the County Society.

On request by letter of Dr. E. G. Sprague, Barre, Vt., his resignation was accepted.

On account of age and other circumstances well known it was voted to place Dr. G. B. Morey of Manchester on the retired list.

On motion of Dr. F. L. Keay it was voted that members who apply therefor, with good and sufficient reasons known to the Council or House of Delegates, be placed on the retired list.

On motion, adjourned.

MAY 13.

In accordance with the constitution the Council was called to order at 12 M., for the election of officers for the year 1910-11.

No quorum was present and on motion of Dr. Mitchell, the body adjourned.

A. H. HARRIMAN,
Secretary pro tem.

On motion of Dr. E. O. Crossman, adjourned.

Digitized by Google

REGISTERED

AT ANNUAL MEETING, MAY 12 AND 13, 1910.

George C. Blaisdell,	Contoocook.
W. P. Grimes,	Hillsborough.
J. J. Osterhout,	Keene.
W. L. Kelso,	Hillsborough.
Charles Duncan,	Concord.
J. M. Gile,	Hanover.
George H. Clarke,	Concord.
W. P. Beauclerk,	Concord.
E. T. Drake,	Franklin.
Frank Blaisdell,	Goffstown.
D. G. Underwood,	Bradford.
D. M. Currier,	Newport.
H. E. Thompson,	Bethlehem.
C. H. Dolloff,	Concord.
Charles C. Rogers,	Farmington.
A. H. Harriman,	Laconia.
George H. Guptill,	Raymond.
A. S. Wallace,	Nashua.
D. E. Sullivan,	Concord.
G. H. Shedd,	Conway.
Irving A. Watson,	Concord.
George S. Foster,	Manchester.
C. R. Gibson,	Woodsville.
George Cook,	Concord.
D. R. Chase,	Lebanon.
D. P. Goodhue,	Springfield.
E. E. Graves,	Penacook.
H. C. Holbrook,	Penacook.
George C. Wilkins,	Manchester.
A. Stephen Russell,	Rumney.
C. I. Cole,	Henniker.
Elizabeth Hoyt-Stevens,	Concord.
Harriet Noyes Randall,	Claremont.

Digitized by Google

John F. Holmes,	Manchester.
S. W. Jones,	Franklin.
F. A. Bakeman,	Franklin.
J. B. Pettengill,	Amherst.
G. Edward Buxton,	Rhode Island.
E. C. Chase,	Plymouth.
H. N. Kingsford,	Hanover.
H. K. Faulkner,	Keene.
Charles S. Walker,	Keene.
A. A. Pratte,	Keene.
J. A. Craig,	Westmoreland.
E. A. Clark,	Concord.
F. N. Rogers,	Manchester.
C. F. Patterson,	Rye.
Clarence O. Coburn,	Manchester.
Alfred Daudelin,	Somersworth.
T. W. Luce,	Portsmouth.
Arthur F. Sumner,	Manchester.
C. H. Babbitt,	Nashua.
Eva M. Locke,	Nashua.
S. M. Dinsmoor,	Keene.
M. A. Sweeney,	Nashua.
C. H. Holcombe,	Brookline.
J. B. Woodman,	Franklin.
F. A. Sprague,	Concord.
Henry C. Stearns,	Concord.
A. M. Fernald,	Sutton.
I. G. Anthoine,	Nashua.
H. E. Mygatt,	Nashua.
S. T. Ferguson,	North Weare.
John H. Bates,	East Rochester.
Emdon Fritz,	Manchester.
Arthur L. Wallace,	Nashua.
C. E. Butterfield,	Suncook.
Frederick Perkins,	Manchester.
C. F. Nutter,	Nashua.

Digitized by Google

B. G. Moran,	Nashua.
Louis W. Flanders,	Dover.
John H. Neal,	Portsmouth.
A. W. Shea,	Nashua.
Herbert L. Taylor,	Portsmouth.
G. V. Fiske,	Manchester.
John D. Proctor,	Keene.
C. F. Flanders,	Manchester.
F. B. Easton,	Laconia.
G. H. Hawley,	Barnstead.
F. H. Sargent,	Pittsfield.
M. B. Sullivan,	Dover.
A. Noel Smith,	Dover.
C. E. Congdon,	Nashua.
John C. O'Connor,	Manchester.
Emery M. Fitch,	Claremont.
David W. Parker,	Manchester.
Harry B. Carpenter,	Lancaster.
F. L. Keay,	Rochester.
Edwin G. Annable,	Concord.
Henry Ladd Stickney,	Manchester.
George H. Foss,	Alstead.
W. P. Craig,	Walpole.
I. L. Carpenter,	Manchester.
John M. Page,	Littleton.
Walter Tuttle,	Exeter.
Charles R. Walker,	Concord.
Loren A. Sanders,	Concord.
Russell Wilkins,	Concord.
Ethel Mitchell-Newton,	Concord.
E. O. Crossman,	Lisbon.
G. B. Morey,	Manchester.
Edmund E. Hill,	Suncook.
E. B. Atherton,	Nashua.
L. T. Togus,	Hooksett.
H. H. Amsden,	Concord.

Digitized by Google

G. P. Conn,	Concord.
R. E. Gallinger,	Concord.
Charles H. Cook,	Concord.
Frank W. Evans,	Coös.
Albert J. La France,	Laconia.
William H. Lyons,	Manchester.
Chancey Adams,	Concord.
M. L. Bugbee,	Concord.
W. R. Garland,	Plymouth.
Charles L. Curtiss,	Manchester.
Robert J. Graves,	Concord.
John H. Gleason,	Manchester.
F. E. Kittredge,	Nashua.
O. B. Douglas,	Concord.
John T. Murray,	Manchester.
F. J. Pherson,	Manchester.
F. L. Gerald,	Warren.
C. E. Newell,	Derry.
F. A. Bogardus,	Canaan.
A. C. Heffenger,	Portsmouth.
George D. Towne,	Manchester.
W. H. Leith,	Lancaster.
E. A. Tracy,	Keene.
S. S. Dearborn,	Nashua.
Ira J. Prouty,	Keene.
Lillian G. Bullock,	Manchester.
A. A. Beaton,	Franklin.
E. W. Hodsdon,	Mountainview.
E. F. Houghton,	Tilton.
John W. Staples,	Franklin.
A. E. Brownrigg,	Nashua.
G. W. McGregor,	Littleton.
C. M. Sneden,	Littleton.
R. E. Wilder,	Whitefield.
Charles B. Drake,	West Lebanon.
John Wheeler,	Plymouth.

Digitized by Google

Philip H. Greeley,	Farmington.
D. L. Stokes,	Rochester.
J. J. Cobb,	Berlin.
A. K. Day,	Concord.
V. M. Newcomb,	Somersworth.
Ellen A. Wallace,	Manchester.
Zatae L. Straw,	Manchester.
A. Gale Straw,	Manchester.
W. H. Pattee,	Manchester.
A. W. Mitchell,	Epping.
J. F. Axtell,	Newton.
W. A. Thompson,	Manchester.
C. S. Abbott,	Laconia.
H. L. Smith,	Nashua.
G. W. Hazelton,	Haverhill.
William E. Smith,	Franklin.
F. P. Claggett,	Newport.
F. L. Hawkins,	Meredith.
Frank Eaton,	East Weare.
F. W. Grafton,	Concord.
F. A. Stillings,	Concord.
Frederick Von Tobel,	Lebanon.
H. C. Tinkham,	Burlington, Vt.
Henry C. Sanders, Jr.,	Claremont.
George B. Landers,	Concord.
Charles H. Quinn,	Concord.
Samuel R. Upham,	Claremont.
Joseph Theriault,	Concord.
P. C. Bartlett,	Warren Summit.

Digitized by Google

BANQUET.

The annual banquet was held Thursday evening, May 12, 1910, at seven-thirty o'clock at the Eagle Hotel, with one hundred and eight members, guests and ladies in attendance.

Post-Prandial Exercises.

Anniversary Chairman, Dr. A. Noel Smith.

"Dartmouth College," President Ernest Fox Nichols

"Our Guests," Dr. G. Edward Buxton, Rhode Island

"The Physician as the Lawyer Sees Him," General Charles W. Bartlett, Boston

"Our Neighbors," Dr. H. C. Tinkham, Burlington, Vt.

"The Medical Profession from a Clergyman's Standpoint," Rev. Sydney B. Snow

"Our Sister State," Dr. Ernest S. Jack, Melrose, Mass.

Digitized by Google

PRESIDENT'S ADDRESS.

FRANK BLAISDELL, M. D., GOFFSTOWN.

Fellows of the New Hampshire Medical Society:

No son of New Hampshire ever had occasion to blush for his native state; founded upon equity and civic righteousness, with a scenic grandeur that brings man into intimate contact with his maker, with a population of men and women, clean and virile, she has always been found on the side of right and decency, and has sent men and women out into the world, that have carried her principles into religion, politics and business. To you and me, as medical men, this statement appeals with more than ordinary force, for among the original thirteen states, yes, among those which have since been added, there is no state that has been founded so much under the direct influence of the medical profession as has New Hampshire. Why! New Hampshire physicians have not only been at the foundation of the state, but of the nation as well. One hundred and thirty-four years ago, out in Philadelphia, Thomas Jefferson wrote the grandest state paper ever written, containing those immortal words, "We hold these truths to be self-evident: That all men are created equal; that they are endowed with certain inalienable rights; that among these are life, liberty, and the pursuit of happiness." And when the president of the Congress, John Hancock, had written his bold signature, the first state to sign was New Hampshire, and the first man to sign was our beloved Dr. Bartlett, of Kingston, to be followed by his patriotic col-

Digitized by Google

league, Dr. Matthew Thornton, of Londonderry. It will well repay us to follow the men of our profession who were so potent in building up our state a little farther, for I wish to give you in this paper a brief resumé of one hundred and twenty years of New Hampshire medicine, and the indebtedness of our state to the medical profession for much of its prosperity is due directly to New Hampshire physicians.

JOSIAH BARTLETT.

Josiah Bartlett was a remarkable man, great as a physician, great as a builder of New Hampshire. One writer has said of him that he was a man who "mingled curiously Athenian philosophy, fine and æsthetic, and Yankee cuteness, cool and practical." The history of his period describes him as a splendid figure of a man six feet in height, very erect, with light blue eyes, auburn hair, which he wore in a queue, and his dress was the dress of the period, white stock at the throat, ruffles at the wrist, knee breeches, black silk stockings, and low shoes with silver buckles. He was born in Amesbury, Mass., November, 1727. He studied medicine with Dr. Ordway, and commenced the practice of medicine in Kingston, this state, and soon acquired a very large practice. Dr. Bartlett was not a routine practitioner and very soon broke away from the traditions of his time. It is recorded of him that during a severe fever he made his attendants get him a quart of cider, which he drank; he believed that this saved his life, and thereafter he gave his patients all they wanted to drink. You will remember that this was as rank heresy in those days, as it would have been to have doubted the theology of Cotton Mather of an earlier day. He also would not accept the accepted pathology of that day in regard to diphtheria, but used antiseptics and stimulants, and saved many more patients than his colleagues; he was a thinking man, and after he had thought out a problem he

Digitized by Google

went ahead, and, like all true discoverers, he won out. He was the first man to introduce the use of Peruvian bark into this state. He was one of the founders of the New Hampshire Medical Society. Its first president, he drew its charter, framed its by-laws, and put it on such a solid basis that it has never had troubles to bother it, or has its perpetuity ever been threatened. Prior to 1791 the profession in this state was unorganized. In that year Bartlett obtained a charter, eighteen other physicians being associated with him. The charter was granted on the sixteenth of February, 1791, and he called the first meeting at Exeter on the fourth day of May following. There were present at that first meeting, Josiah Bartlett, Joshua Brackett, Hall Jackson, Nathaniel Peabody, John Rogers, Ebenezer Rockwood, William Cogswell, William Parker, Benjamin Page and Isaac Thom, all strong men, whose names you will often see in the earlier history of New Hampshire.

Joshua Brackett was in the Canadian expedition of 1759 and was a judge of the Maritime Court of the Colony.

Hall Jackson practiced medicine at Portsmouth. He was a member of a Portsmouth regiment, and while there attended a singular case in James Kilpatrick of His Majesty's 77th Regiment, which he describes as follows: "Having several large and deep abscesses in different parts, and an African worm of several feet in length in both legs."

Nathaniel Peabody commenced practice in Plaistow in 1761, and was a lieutenant-colonel of militia in 1774, one of the Committee of Safety in 1775, adjutant-general in 1779, a member of the Continental Congress in 1779 and 1786, was a member of the state Legislature for eight years and its speaker in 1793. Very few men ever did more for New Hampshire than he.

John Rogers was a surgeon to the prisoners brought from Louisburg, and died in Portsmouth in 1746.

Digitized by Google

Ebenezeer Rockwood I find but little about, but he must have been a prominent physician of his time.

William Cogswell was probably one of the famous Cogswell family of Gilmanton.

William Parker, Jr., was a surgeon in the army, a justice of the peace, and register of the Court of Common Pleas for Rockingham County.

Benjamin Page was a justice for Hillsborough County.

Isaac Thom was the surgeon of Stark's regiment, and fought at Bunker Hill.

Thus we can readily see, that the men who founded our society were not only men who felt it incumbent upon them to uphold New Hampshire medicine and surgery, but men who felt it to be just as incumbent upon them to uphold the honor of the state. Surely, we can congratulate ourselves upon those who founded our society, a society that during all its one hundred and nineteen years has stood firm for the right in medicine, and in state affairs, and this foundation was so broad and firm that no dissensions, no schisms, no Thomsonianism, homeopathy, Christian Science, or Emmanuel movement, has ever caused its foundations to tremble.

Dr. Bartlett's work for the state was inestimable. He gave himself freely and his work in state affairs has been felt through the whole life of the state. He began his great work young in life, and as soon as he attained his majority gave himself to the service of the colonies. He was first a justice, then he became colonel of a militia regiment; in 1765 he was in the Legislature, where he fought so valiantly for the rights of the colonies, that in 1775 they took away his commission as justice and dismissed him from the command of his regiment. A good many patriots got served the same way about that time, but that same year his fellow-patriots elected him a delegate to the Continental Congress, where he became historically immortal as the first signer of the Declaration of

Digitized by Google

Independence, after the president had signed it. In 1780 he was made chief justice of the Court of Common Pleas for New Hampshire, and in 1782 was appointed justice of the Supreme Court, which place he held for six years, when he was made chief justice. He was President of the State Society in 1790 and 1791, and in 1792 when the new constitution was adopted, he was made governor, thus becoming the first governor of the state. He was re-elected in 1793, and was also elector for president and vice-president. In 1794 he retired from the governor's chair, and was elected to the United States Senate, but from ill health was unable to serve. Dr. Bartlett died from paralysis May 19, 1795, and his last words to his beloved Medical Society contained these words:

"That the members of this society may be useful to themselves and the public, and enjoy that exalted pleasure of satisfaction that arises from a consciousness that they have contributed to the health and happiness, not only of their patients, but, by communicating to others the knowledge and cure of disease, to the general happiness of the human race, is the ardent wish, gentlemen, of your very humble servant, Josiah Bartlett."

This was dated Concord, June, 19, 1793. This was his message to us of to-day; shall we heed it? Fellows, in the town of Kingston stands the large old-fashioned house that he built and lived in. In one corner of the lot, under a simple granite stone, he lies, gone back to mother earth; but toward that spot, you and I, as members of this venerable society that he founded, sons of the state he helped to found, should turn in humbleness of heart, hoping from such a pilgrimage to gain that rare devotion to his profession, his country and his God, which characterized Josiah Bartlett, for though dead these 105 years, yet the ripple he started in political and professional life in New Hampshire has gone on widening and deepening, and is potent in a larger and greater sense to-day than 125 years ago.

Digitized by Google

MATTHEW THORNTON.

When one asks us what nationality we claim, we answer with pride, we are Americans. If we should be asked what nationality an American is, we should be puzzled. But there has been no race that has contributed more to the make-up of the true American than has the Irish race, and no better patriot or truer American ever existed than that Irish-born boy, Matthew Thornton. He was one of that splendid type of men that, coming from a foreign country when a boy, grew up under the influence of our institutions, and when his adopted country needed him, willingly gave his all to her. Thornton was born in Ireland in 1714, and came to this country a mere boy. As he grew up he received an academic education in Worcester, Mass., studied medicine, and began practice in Londonderry, N. H. He was a very skilful physician and successful surgeon, and had a very large practice for those days, but like his colleague, Bartlett, he was willing to sacrifice everything if his country needed him; and they did need him, and he fought and risked his life for the colonies. He was an army surgeon and fought with Sir William Pepperell against Louisburg, and he rose to be a colonel of militia. He was one of the commissioners to have Hillsborough and Rockingham counties divided. He was a justice for Hillsborough County, a justice of the peace and quorum for Rockingham County; he was elected a member of the Continental Congress in 1776 and held this position until 1778, when he resigned to accept the chief justiceship for Hillsborough County; he held this position for two years when he resigned to accept an appointment upon the Supreme Bench of the state. In 1783 he was a member of the state House of Representatives, in 1784 of the state Senate. Thornton was not with Bartlett at Philadelphia, for some reason, when the Declaration of Independence was signed, but

Digitized by Google

was one of a company who were waiting at Exeter to hear what the Congress had done, and was there when the messenger dashed into the village with the glorious news that we were now, "Free and Independent!" But he soon did sign it, and became one of that immortal number that history will always remember while history shall last.

Thornton died at Newburyport, Mass., in 1804, at the ripe old age of ninety-five.

Here were three men whom I have mentioned, Bartlett, Thornton and Peabody, all splendid physicians, who, in the formative period of our government, worked and did all that men could do to put our state on a solid basis. They sacrificed their professional advancement, their property, and offered up their lives for New Hampshire; Bartlett and Thornton died full of honor, but Peabody, who worked, perhaps, as hard as any of them, devoted his life as much as any, and was a patriot when patriotism meant sacrifice, had his last days embittered by financial troubles, and died in jail at Exeter, where he had been confined for debt. He probably had spent his all to further his country's cause, and had the men of those days seen the value of his splendid services, as we of to-day see them, they would never have allowed this to happen, and it is a disgrace that it was allowed to happen then. These men, although they devoted so much to the state, did not permit their profession to suffer, and coincident with their struggle for the state went also their struggle to put medicine on a solid basis. The birth of the state and of this society came out of the same birth-pains, and in the solidity of one we can see the solidity of the other; take up the old state papers of the revolutionary and pre-revolutionary periods, and as you read them you will be struck with the number of names of physicians who helped build up our beloved state, and the history of New Hampshire cannot be written, without also writing the history of the medical profession; and this proves my contention, that New

Digitized by Google

Hampshire owes as much to the medical profession of this state for the splendid foundation of the earlier years, as she does to any other profession; and the proud position of our little state, which we are all proud of, has come down to us as an "Inheritance of the Fathers." This is a comforting thought, and is, usually, the only comfort we do get, when we ask something of the Legislature.

The old-time custom of taking physicians from active practice and asking them to help build New Hampshire has continued. In 1824 they elected another physician governor.

DAVID L. MORRILL.

Dr. David L. Morrill was born in Epping in June, 1772. He studied medicine and commenced practice in Epping in 1793, but as was often the custom in those days, in 1800 he began the study of theology and was ordained as pastor of the Congregational Church in Goffstown, practicing medicine and preaching also. In 1811 he gave up preaching and confined himself to medicine, and some of the present generation have told me stories of this old practitioner that had been told them by their grandparents. In 1808, Dr. Morrill was elected representative from Goffstown, and they liked him so well that they re-elected him every year for nine years. In June, 1816, he was elected speaker of the House, and the same year chosen to the United States Senate for the term of six years. In 1823 he was elected a member of the state Senate and was president of that body, and in 1824 he was elected governor of New Hampshire. The old house that Dr. Morrill built in Goffstown stands near the electric track at Goffstown Centre, or Grasmere as it is now known. It has recently been restored and is a splendid type of the old colonial architecture. In 1852 they elected another physician governor.

Digitized by Google

NOAH MARTIN.

Dr. Noah Martin came to us from the Scotch-Irish settlers of Londonderry. He was born in Epsom in 1801, was graduated from Dartmouth in 1824, and practiced medicine in Great Falls and Dover. He was a representative to the state Legislature in 1830, 1832 and 1837, and state senator in 1835 and 1836, and was elected governor in 1852. It is recorded of him that he was proficient in law as well as medicine, and a statesman from native good sense and judgment. And to-day we are living under the splendid administration of Henry B. Quinby, an educated physician, but one whom other duties made it impossible for him to follow.

And thus it is to-day, our senior senator in the United States Congress has served his country continuously for nineteen years ago, for I think it was that length of time ago that Dr. J. H. Gallinger was elected; and in our state Legislature, Senate and Council, we find our profession frequently called upon to serve their state and they have always given it good service, but it is not only the men who have received the highest offices in the gift of the state, that have done good work for New Hampshire.

STATE BOARD OF HEALTH.

Twenty-nine years ago, through the hard work of Drs. Conn and Watson, an act creating the state board of health was passed, and nothing New Hampshire has ever done has been more potent for good than this; and we do not think enough of the great work this board has done for the state. If the lives of the men, women and children that have been saved to the state by it could be computed in money, the state could never get money enough to pay the debt. I think it a safe estimate to say that from thirty to thirty-five more lives are saved in our state to-day, in every thousand of the population, than could have been

Digitized by Google

saved before the state board of health was organized. Hundreds have been saved by the bacteriological examination of cases of diphtheria, and the early administration of antitoxin; hundreds of children have been prevented from contracting scarlet fever and measles by the placards on the houses; typhoid fever has become rare by freeing our streams from pollution, and a better knowledge of sanitation; hundreds of children are kept from being sick by milk and tenement house inspection and the help that a better knowledge of disease has given the laity. Why, gentlemen, when we take the nation as a whole, and compute the money loss from sickness, the sum is appalling. Let me quote a few lines from a recent work, written after months of study of these things: "It is estimated that the preventable loss from death in this country is one billion of dollars; add to this the loss from sickness, which is five hundred million more, so that we have a loss of money, actual and potential, of one and one-half billions of dollars, all of which is preventable by good hygienic laws; that is, we are losing this vast sum needlessly, as correct sanitation would prevent this." But what nation is there that can stand for any series of years a financial loss of one and one-half billions of dollars? While it has been proved that the financial cost necessary to prevent this loss is only about twenty dollars for each person, as it is reckoned that the money value of each life has an average of seventeen hundred dollars, and it only costs twenty dollars to save that life, we can from an easy sum in arithmetic prove that for each life saved the state saves financially—in fact, makes a clear profit of sixteen hundred and eighty dollars. Take the statistics of our state and reckon them upon this basis, and the state board of health is the most profitable investment it ever made. But the state board of health needs more money. There is now an imperative need of more laboratories; we have only two, and the difficulty of getting cultures back and forth

Digitized by Google

through the mail often materially lessens the chance for the patient to get efficient treatment, especially in diphtheritic cases, in proper season; indeed, some men whom I know send their culture and give the antitoxin at the first visit, but if the disease proves not to be diphtheria there is a financial loss to the patient that ought to be avoided. Manchester imperatively needs a laboratory now, Nashua and Portsmouth need one, and the good they could do would be in direct proportion to the increase. I believe that the state board of health has returned to the state a larger interest on the investment than anything we have ever done. Under the efficient management of its secretary, its work has been commendable. I understand that its statistics are among the most reliable of any state, and it has done more than any other agency in making our state a desirable one to live in. Financial loss is prevented every year by the stamping out of epidemics; the dread of smallpox has been banished through the enforcement of vaccination; individuals are warned from infected houses, and the epidemics of typhoid that used to rage, unchecked, are now regarded as the blunder of some one, and the potential wealth embodied in years of work, which otherwise would have been lost by disease, has been saved to the state, and more money should be granted to do this life-saving work. Its work should be extended to the loss of life by preventable accidents on railroads, and in shops to sweatshop methods, and poisoning while working with chemicals, the prevention of criminals and the physically unfit from marrying, and the sterilization of those whose children would only increase the criminal class; and I sincerely hope that this society will always be ready, by their votes, to further this good work.

JOSIAH EASTMAN.

Our state has been noted for its general intelligence and, perhaps, outside of the common school no one thing has

Digitized by Google

been more helpful in building a well-informed laity, than has the public library system of our state. No agency does more for a high general standard of education than this, for a well-read people are, in just so much as they are well read, able to decide rightly on great public questions, and our public library system is a great help in school work, as those of us know who have been in school management. It gives the student a chance to get collateral reading, and the student often can supplement the knowledge gained from instruction by the knowledge gained from reading, thus making a better educated person of the ordinary boy or girl, and our state is indebted for her library law, which is so arranged that hardly a town is so poor that they cannot have a library of some kind.

Dr. Josiah Eastman, of Hampstead, while a member of the Legislature in 1849, first introduced a bill, entitled "An Act providing for public libraries," and by his persistence and hard work it became a law. I suppose that many would not regard this as heroic as Dr. Eastman's gallant services at Hilton Head or Port Royal during the War of the Rebellion, but who can say that it is not more lasting.

EZRA MITCHELL.

In the fight against the "Great White Plague" which our country is now waging, certain well defined principles of treatment have been already formulated, and we have come up from a condition of helplessness to one of optimism. One thing we have found out that is a wonderful help to us, and that is, that there is a curable stage; not only this, but there has come along with it well-defined principles of treatment during that stage, notably fresh air and good food. This led to the establishment in many of the states of sanatoria, where these things could be supplied and intelligently used. New Hamp-

Digitized by Google

shire was rather slow to start, so slow that one of the brightest of our north country physicians and surgeons got impatient. He had had tuberculosis himself and believed himself cured and, like the big-hearted man that he was, wanted every one to have the same chance, so in 1903, although caring nothing for politics, he got himself elected to the Legislature for the sole purpose of pushing through a bill granting money to build a state sanatorium for consumptives. This bill passed both Houses, but the governor vetoed it. Not discouraged he was re-elected in 1905, and again took up the fight, and it was finally arranged that the bill should become a law in 1907, and it did, and the sanatorium at Glenn Cliff is the result. This should be enlarged at once, for, although we can never build sanatoria enough to take care of but a small number of our tuberculous patients, yet we often forget the most important function of the sanatoria, that of educating the consumptive to take care of himself. After this is done he is sent home, and another takes his place, and is also educated to take care of himself, and in this manner "A little leaven will leaven the whole lump," But this process is too slow, too many die or become incurable while waiting their chance, so more of these life-saving stations should be established and many more men and women be saved. We shall hear, before this meeting is through, from the very efficient superintendent of Glenn Cliff something about this work. Its worth to New Hampshire cannot be measured in money, and no money consideration should stand in the way of enlarging its usefulness; the great good already accomplished is due to the vigor, patience and persistence of Dr. Ezra Mitchell, of Lancaster. Here was another man who fought during the war for his state and country, but whose work will save more lives to New Hampshire in a few years, than she lost during the Civil War, and he displayed the grandest kind of patriotism in the world in his tuberculosis

Digitized by Google

fight, for he has destroyed hopelessness and set in its place a healthy optimism. He is dead, but his work will live to bless generations yet unborn, and what can man do better than leave something like this behind him to make those of later generations to rise up and call him blessed.

Other men than those I have mentioned have devoted their lives to building up New Hampshire medicine in other states. One or two occur to me. There was

SILAS DURKEE.

Silas Durkee was born at Hanover, November 22, 1798. He graduated from the academic department of Dartmouth, studied medicine and graduated from Bowdoin Medical School in 1822, and after practicing for a while at Portsmouth, he moved to Boston in 1841, and became noted at once as a specialist in skin and venereal diseases. He wrote a remarkable work upon venereal diseases, which went through six editions and is still quite readable. Then there was

J. BAXTER UPHAM.

Dr. Upham was born at Claremont, and was graduated from Dartmouth in 1842. He then entered the Harvard Medical School, from which he graduated in 1847, and practiced his profession in Boston until the outbreak of the Civil War when he joined the army and served through it as a surgeon under Burnside. He died in New York, March 17, 1893. For many years Dr. Upham was visiting physician to the city hospital in Boston, and his biographer says of him "A finer type of the high-bred, courteous, humane gentleman it would be hard to find." Dr. Upham's contributions to the diseases of camp life were very valuable. And there were many others I would like to speak about, had I time. Then there are the surgeons of New Hampshire whom I have written about in my paper, "One Hundred Years of New

Digitized by Google

Hampshire Surgery," and of whom I can only speak briefly to-day.

SURGEONS OF NEW HAMPSHIRE.

These men you will remember in the earlier history of our state were splendid practitioners as well as surgeons. There was Amos Twitchell, the first man to ever successfully tie the carotid artery, having done it eight months before Sir Astley Cooper did it. There was Muzzey, who was the first to tie both carotids, and to prove that intracapsular fractures do unite. There was Dixi Crosby, the first to remove the arm, scapula, and two-thirds of the clavicle for osteosarcoma. There was Willard Parker, that New York has not yet forgotten; Gilman Kimball, the first man to deliberately open the abdomen on a correct diagnosis, and do a hysterectomy; Edmond Randolph Peaslee, who wrote the first work on histology ever written in this country and that great work on "Ovarian Tumors"; David W. Cheever, whose great work at the Boston city hospital, and throughout the country, cannot be computed; Ben Crosby, professor of anatomy at Bellevue and of surgery at Long Island and Dartmouth; George W. Gay, known so well as a great surgeon and teacher, lecturer upon surgery at Harvard; John Wheelock Elliott, who did the first successful resection for mesenteric thrombosis ever done in the world; and Fred Lund, whose stomach work is remarkable, and all of the older of these men were, in the earlier part of their lives, successful physicians as well. And among the physicians who have been an honor to our state are Lyman Spalding, born at Cornish in 1775, and professor of anatomy and president of the College of Physicians and Surgeons of New York; Jeremiah Noyes, born at Atkinson in 1776, professor of chemistry in the College of Physicians and Surgeons, New York; Jesse Smith, born at Peterboro in 1793, professor of anatomy and surgery in the Medical College of Ohio;

Digitized by Google

James Hadley, born at Weare in 1785, professor of materia medica and chemistry at the College of Physicians and Surgeons; Hamilton, Castleton and Hobart; Arthur L. Porter, born at Portsmouth in 1794, professor of chemistry and pharmacy in the University of Vermont; Albert Smith, born at Peterboro in 1801, professor of materia medica and therapeutics at Dartmouth; Edward Spalding, born at Amherst in 1813, and prominent in the medical and political history of the state; Miles Olcott Heydock, born at Hanover in 1828, professor of medical jurisprudence at the medical College of Chicago; Abner Hartwell Brown, born at New Ipswich, professor of medical jurisprudence and materia medica in the Berkshire Medical College; Thomas Russell Crosby, born at Gilmanton in 1816, professor of physiology at Norwich University; and Frederick Smith Ainsworth, born at Jaffrey in 1820, professor of pathology and physiology at the Berkshire Medical College; and many others of whom we have not time to speak.

And now, fellows, allow me to break away from tradition, that in addresses of this kind we must speak only of those whose life work is rounded out, and, at least, are not present, and speak of one who deserves our tribute to-day, for he has worked hard and unselfishly for his profession in this state for many years; a man who knows every foot of his native state, for he has repeatedly traveled over it, and probably knows as many of the inhabitants as any man in it, and to whom every member of this society wishes all the good things that can be had here below; a man who was very kind to me in the earlier part of my practice, and has been ever since; a man who has probably helped more young men than any other man among us; a man whom I have known to ride all day in his buggy, doing an immense business, and then ride all night doing work for the state as railroad commissioner; a man who worked hard that the state board of health might be established, who

Digitized by Google

has written the history of those who fought with him, that New Hampshire might still be a member of a Union that should know no North or South, professor of hygiene at Dartmouth, and who now, at seventy-nine years of age, and after fifty-five years of hard work in his chosen profession, is as young as any of us, and I bring the love and admiration of the New Hampshire Medical Society to-day to that grand old man of the medical profession, Granville P. Conn.

DARTMOUTH MEDICAL COLLEGE.

I should do violence to my own convictions, did I not speak of the splendid work done for New Hampshire by the Dartmouth Medical School. Numerically the school is a small one, but large when the character of the men she has sent out has been considered, for in the one hundred and twelve years of her existence many men who have done much for New Hampshire medicine have gone out from her. I speak more particularly of the old school, as we who are older remember it, when five hundred students in all departments was considered a big number; the Dartmouth with the old traditions, and not of the new Dartmouth with its twelve or thirteen hundred students, its splendid new buildings and equipment; but, thank Heaven, a new Dartmouth with the old traditions still a life principle, the tradition that it is what is in a man that makes him, rather than money or family.. Dartmouth is a peculiar college in some respects, and the medical school has not received that appreciation that it deserves. Dartmouth is peculiar in its influence. This influence did not appeal to us so much when we were students there as it does to-day, but the farther one gets from the days spent there, the closer the old college gets to him. This is so no matter what department you graduate from; you grow as the years grow into a greater love for the old school. Go to a Dartmouth-Harvard football game, and the men who get

Digitized by Google

the craziest are the ones who have been out of the school the longest, and the "Wa-hoo-wah" is pure joy when we win and a good manly whoop when we do not. Now, what is it that so gets into the blood, like a toxin, and so increases that it takes possession of us? It is the Dartmouth spirit; and what is the Dartmouth spirit? It is that manly, healthy, hopeful, optimistic spirit, that teaches a man to play the game for all he is worth, and never forget that he is a gentleman when he does it. I say this, for the Medical School comes directly under this influence. Another thing that is very helpful is the fact that the student comes directly under his teacher's influence, not only intellectually, but morally; the school is small enough to permit this. How many have come away in the old days directly influenced by the splendid individuality of the men who taught them? Besides, the education you get there is only fed to you as fast as you can assimilate it; they do not attempt too much. I am afraid that some of the larger schools err in this direction, and try to do in four years, what six or seven years are needed to digest, and the student comes out and has to take years to assimilate what he has got, or he comes out with a good attack of indigestion. The Dartmouth student, as a rule, has a splendid knowledge of the fundamentals of medicine. He is a good anatomist, is good in physiology, good in bacteriology, and has a good knowledge of the use of drugs. He has seen a number of clinics, both medical and surgical, and been close enough to take them in and get a good working knowledge of them; he is taught to climb, rather than to rush up the hill of knowledge; he has built for him a good foundation, then is expected to be the architect of the building to be erected. I can conceive nothing better for a young man who wants to be well grounded in his profession, than an academic degree from this school, followed by his M. D., then five or ten years in country practice to find out where he stands, then a post-graduate to

Digitized by Google

finish him up, and a specialty if he wishes it; but don't choose your specialty, let your specialty choose you. This is the work the Dartmouth Medical School has been doing for one hundred and twelve years; this is the work it is doing now, sending out into the world good level-headed practitioners of medicine.

THE OLD COUNTRY DOCTOR.

At the close of the Revolution there were but few towns in New Hampshire, but with the coming of peace and independence settlers came in, bought farms, and gradually communities sprang up, became towns, and communal life became established. Into these towns in the old times came first the minister, then the doctor, then the lawyer. These three were representatives of what were then the only learned professions, and they became at once the influential men of the place, especially the minister and the doctor, only the larger towns having the lawyer. It is impossible for us of to-day to realize the hold that these two professions have upon the life of the country towns. Nothing could be done without asking their advice, and both professions were held in such respect that their decisions had the force of law. If children were to be educated, they usually received their Greek from the minister and their Latin from the doctor, and to the credit of both be it said, that they were continually looking for young men and women who were worthy of help, and when found they gave freely of their time and learning to help them, and life in those old country towns became nearly ideal. I think that none of us will deny, that with the loss of this influence much has gone out of New England life that had a direct influence for good. The physician of to-day is fast becoming a scientific machine. Few men to-day are the confidants of the families, as they were in the olden time, and the sacredness of life that these conditions developed is an impossibility now, for the old doctor

Digitized by Google

was not only the physician for their bodies, but their financial, educational, legal, and sometimes spiritual, adviser, and when the patient died the old physician felt that he had lost a friend and not simply a case.

In that old-time country community the theology of the minister was your theology—none disputed it, none dare doubt, and what was better none dared bring reproach upon it; and friends, are you prepared to say that a life where the best men went into the professions, where politics were regarded as a religion, where a rigid code of morals was adhered to, where the lawyers' cases were mostly cases where the law was not understood, instead of damage suits and malpractice cases, and the family doctor was the father confessor, was not better and more conducive to the best things in life, than the present boasted civilization? There are men in all three professions that never should be there, while only those could get an education in the old times, under the adverse conditions surrounding education, who were determined to get all out of life that was in it, could stand the sacrifice needed, and the result was the proving of a Darwin theory, and the "survival of the fittest."

The conditions under which a physician must work to get his degree in the old time were so hard that they brought into medicine men of strong, rugged intellects, and strong physical make-up; they were strong morally, temperate, Christian and charitable, and when they entered into the life of a community these virtues made a force that was dominant, and that must be and was respected, and through the result of environment and stern New England training, came a body of physicians scattered through the country towns, that as a class of professional men have never been equaled; to this type of men years ago I resolved that, if the chance ever came, I would pay the tribute of respect and admiration that is their due, humble though my tribute may be, and

Digitized by Google

this is my excuse for introducing into a presidential address a subject of this nature, my own feeling being that a study of these noble lives are a direct help to you and me, though conditions are changed.

When I commenced practice the country towns held many practitioners of the old school, and it was an inspiration just to know them. Most of them were strong men, mentally and physically. They did not know much about bacteria, high or low tension of the pulse, blood pressure, or diagnosis by the microscope, but they had a forefinger that had a brain in it, an ear as delicate as years of observation could make it, and they could take half a dozen drugs and do work with them that would make us of to-day look foolish. When two old country doctors got together they did not talk learnedly of the invasion of disease germs, the function of the leucocytes, or the amount of hemoglobin, but the first thing asked was, "What can we do to cure our patient?" Those under their care knew this, gave them their confidence and worked with them; and they often did wonderful work.

The influence of these men was a silent one, but who could watch them as they rode day by day and night by night, no vacations, never refusing a call, no weather conditions ever stopping them, doing their duty oftentimes when suffering themselves; doing the grandest thing in this world, giving themselves. These men doctored to cure. I do not care how much a man may know about how disease came to us from a remote past, useful as the knowledge may be, or how learnedly he discusses of pathological findings, useful as they are, yet if he says, as do some of our men whose whole lives have been spent in scientific discovery, realizing of course the great things that have come just this way, yet if he says, as some of our great teachers do, that there is nothing in drugs, he is a failure, and these old doctors could cure ten patients to his one. Not that pathology is not necessary, it is absolutely so, but as

Digitized by Google

means to a cure, rather than an abstract scientific fact,—anyway, we cannot study these lives of the old doctors without being better for it, for their unselfish devotion to their profession in the face of difficulties that we of to-day know little about was an inspiration, not only to you and me, but to every man or woman, whose heart is open to the influence of him that shall "Deliver the needy when he crieth, the poor also, and him that hath no helper." And what grand work they did! I have often come across a fracture set with the rude appliances of the old days, or an amputation done before asepsis, and have often been ashamed that with all the modern things to do with, that I could not do as well as they did. I speak of these things to-day, for many of the young men will never meet one of these old doctors; they are disappearing fast; the country towns are being filled by bright young men fresh from the medical schools, who stay a few years, get the best possible training in self-help, and then go into the cities; and the young man is wise, for after ten years in the country he is better poised, has more confidence in himself, and is in every way better fitted for his life-work than if he had spent these years in the city. And these old doctors were not doing this for money entirely—there was but little money in those days—a bag of potatoes, a load of hay or a cord of wood was often all he could get, and oftentimes he got absolutely nothing; they always died poor and practiced medicine because they loved it. It is the older men only, who can realize the change in rural life in New Hampshire, since these men practiced; the villages were small, the farms scattered, the weekly paper the only news from the outside world, and very little money. Now the farmers live better than you or I can afford to, their tables are covered with books and magazines, they are connected with the outside world by their telephones, while the R. F. D. delivers the daily paper and mail at their doors, and from being the hardest worked men and women in exist-

Digitized by Google

ence, they have become the happiest and most progressive, and from these country homes our scientific schools and colleges are being filled. But the old school doctor has gone because the conditions that made him possible are gone as well, but their record of unselfish devotion, self-denying work and purity of life will never be effaced, and will stimulate us all for years and years to come, for they worked, not expecting reward, not looking for it, knowing that it would not come, but still they worked; and, fellows, they did reap when not expecting it, for there comes to memory, to-day, a day in summer when I was a little boy, and there flashed over the little country village the word that the old doctor was dead up in the little house where he had lived so long, and over whose threshold the whole village had passed many times, seeking ease from physical pain or mental suffering, and never coming away disappointed, and from out of which, day and night, he had gone to comfort and to help; he was sleeping the first unbroken sleep he had been sure of for fifty years. Marcus Aurelius once said, "Let another pray, 'Save thou my child,' but do thou pray 'Let me not fear to lose him.'" This to me expresses the relationship between the old doctor and his patients. They had begged him, implored him, prayed him to save their loved ones, and while he had done his best, he was also the tender elder brother, who soothed their grief when recovery was impossible. They knew he was aging, they knew his step was growing feeble, but somehow they thought his body would never wear out, and when it did their grief was pitiable. Have any of you forgotten the silence of the old New England Sabbath? It was nothing to the gloom that spread over the village when the news was known. Strong men met in the village street and looked into eyes filled with sorrow; they could not talk, but to one came the memory of a day when the dead man had battled for days and nights for the life of some loved one, whom he finally brought out of the dark-

Digitized by Google

ness of the valley into health and strength, and the family circle was kept unbroken; the other thought of the time when he had loosened the icy hand of diphtheria from a loved child. Women left their work and gathered in doorways and asked, with tears running down their faces, "What shall we do now?" for to most of them he had been a ministering angel, sometimes in the martyrdom of maternity, sometimes in the hopelessness of grief; even the children were oppressed with a grief they could not explain. Then came the day of the funeral—the hay was left in the fields, the horses in their stalls, no housework was done that day, the schools closed, the stores were shut up, the shops shut down, and the whole village was one large family gathered in the village church to pay the last token of respect to the old man who had spent his life for them; and when the old white-haired clergyman, who had stood by the old doctor in so many hard battles and had begged God to give him the victory, when he intoned those grand words, "I am the resurrection and the life," we seemed to hear the antiphonal response of the angels as they sung back, "Come unto me, all ye that are weary, and are heavy laden, and I will give you rest," it was sublimely touching, sublimely sad, but over it all the halo of a magnificent fight and heroic death. I presume that you have all read Mary Raymond Shipman Andrews' touching story, "The Perfect Tribute." This was a perfect tribute, a whole community paying the tribute of their hearts to their old friend, and as I have thought of this incident in more mature life, I have said to myself, if I could but win from my people this tribute and know that I should have it, I could lay down at the close of my last fight feeling that life was a success after all; for neither riches, honor nor power can ever equal the tribute of loving, loyal hearts. And, gentlemen, though generation after generation comes and goes, yet never out of New England life will go the fragrance and stimulus of these devoted lives.

Digitized by Google

We are the gainers to-day because they lived; generations yet unborn will be helped also for these things are imperishable. We all know that there is an immutable law that whatever we set in motion goes on widening and widening its circle through endless ages, and you cannot go into any country town in New Hampshire where one of these doctors of the old school practiced, but you will find that this influence is potent even now, though perhaps a hundred years have gone since he went back to dust.

Now, fellows, in this paper I am not trying to convince you that all the prosperity of New Hampshire is due to the medical profession, for we all know of the great debt we owe to theology and law, but these two professions have had many eloquent eulogists, while our own seems to have been contented to work on, trusting that what they were doing would help the state. In looking over the addresses of my predecessors in this chair I have found them mostly upon medical subjects, so I offer no apology for this paper; but this grand old state is very much indebted to our profession, and I have thought it well that some of the things they have done for it, directly and indirectly, should be mentioned. Only one other question remains to be answered, then my task is over. Have we now a class of men that are capable of carrying on the grand work of the fathers? I rejoice that I can say with pride in my heart, that we have to-day in New Hampshire the finest type of medical men that the one hundred and twenty years of medicine has ever had; and that we are working harder and progressing faster than any other profession, and in saying this I am doing so, realizing that no profession changes like ours. The Bible must be the basis of all theology, common law is well defined and practically unchangeable, while a medical book five years old is out of date. We may understand to-day the pathology of certain diseases, some new discovery to-morrow may tear our pathology to pieces. Most of us here to-day spent the

Digitized by Google

first years of our practice looking for laudable pus, treating perityphlitis, trying to save fifty per cent. of our cases of diphtheria, thinking typhoid fever a visitation from the Almighty, and tuberculosis your death warrant. We have seen wonderful changes, but nothing to what you of the younger men will see in the next twenty-five years; and what a way the profession have of taking up these changes. If Dr. Coley with his wonderful experience shall tell us to-day that he has discovered a way to cure cancer, his remedy would be tried before a week can go all over our state. If Dr. Leary shall tell of vaccines that we know not of that will confer immunity against certain diseases, they will all be tried as soon as we can get them, for the modern physician is to-day like the athlete with his toe at the tape, ready to put every bit of human endeavor into the race the minute the pistol shot rings out, and I find my profession to-day in this receptive condition, glad to accept anything that promises to prevent disease, or cure it if possible, and waiting eagerly to hear science say some day, as it will some day say, carcinoma and tuberculosis are curable. But enough of this; permit me just a personal word and I will weary you no more. I would like to speak of the splendid physicians who were here when I joined the society thirty-two years ago; men it was a delight to know and whose friendship was among my most treasured recollections, but many of whom have been called away to a larger knowledge, and where disease does not enter. I come up here every year longing for faces that are gone—others are going yearly,—but I thank God that every year some new face meets mine, and I look into eyes full of hope and enthusiasm, I meet new hands outstretched, and I have found a new friend, and I go away from each meeting missing faces I would give much to see, but knowing that the grand traditions of New Hampshire medicine are safe in the hands of the bright, splendidly equipped young man of to-day.

Digitized by Google

One year ago you gave me the highest office in your gift, the greatest compliment you can pay to any man and one we all eagerly hope for. Why you did this I could never understand. There are in this society about five hundred men, and out of that number there are certainly four hundred and ninety-nine better equipped for this office than I. To say that I thank you is right, but that word expresses most inadequately the feeling of pride that has been in my heart the past year at this expression of your confidence. It is an honor to which we all have a right to aspire, but which few can reach, and to be thought worthy to succeed my predecessor and friend, Professor Gile, and to have my name included among the past presidents of this society, including as they do the brightest minds in our medical history, makes me say again, I can't understand why you should honor me so. But out of the years has come an increased respect for the society and for the splendid men who are working to keep it up, for I have been on the inside and know of their devotion and splendid work, and I carry away the feeling that now I have a more personal interest in it for the honor done me, and while life and ability to work shall last, nothing she can ask of me will be too much for me to do. I have no apology to make for this last year, it has been one of uninterrupted progress; for myself I have no apology.

"Life is a game of whist; from unseen sources
The cards are shuffled and the hands are dealt;
Vain are our efforts to control the forces,
Which, though unseen, are no less strongly felt.

"I do not like the way the cards are shuffled,
But still I like the game and want to play,
And through the long, long night with mind unruffled,
Play what I get until the dawn of day."

Digitized by Google

ALCOHOLISM.

HARRY E. MYGATT, M. D., NASHUA.

The subject of alcoholism is one to which the medical profession at large has devoted but little attention in comparison with its work to relieve suffering from other maladies, both from a medical and a surgical standpoint. While it is really a disease, or at least becomes so after reaching a certain stage in the human system, yet it is not generally looked upon as such by our profession. A great many medical men simply consider it a matter of habit, and that habit one which can be controlled by the individuals without medical aid, if they so desire. There seems to be no other malady in which the afflicted receive so little sympathy from the medical profession as well as the public at large. To my mind there is *no greater evil,* no more extensive and widely spread disease than that of alcoholism. Modern scientific observation and research have disclosed the existence of a malady underlying the drunken phenomena of our time, and this malady is termed "inebriety" or "narcomania," a mania for narcotism, or intoxication, which is as really a physical disease as is mental unsoundness, and certainly there is no other disease that is any more sure of undermining the health of the individual addicted to it, or causing more suffering and degradation to that individual, and to those associated with him.

Now alcoholism is the term used to designate the physical and mental phenomena induced by the use of alcohol. There are two varieties, the acute and chronic. Associated with the acute form we have "temulentia," meaning

Digitized by Google

drunkenness, and *mania a potu,* an acute mental disturbance, or madness, from excessive alcoholic indulgence. Delirium tremens is an attack of delirium associated with tremors, usually resulting from chronic alcoholism. Dipsomania, or oniomania, an alcoholic insanity associated with the periodic drinker, also belongs to the chronic variety.

Etiology.—The causation of alcoholism is of two classes, the exciting cause being the moderate and immoderate use of alcohol as a beverage. The predisposing causes are influencies arising from unfavorable moral, social and personal conditions. A neurotic heredity, imperfect nutrition during fœtal life, and the influence of alcohol drinking by the mother during pregnancy, injury at birth, administration of alcohol during infancy, falls, blows, or other injury and bad feeding, or general neglect during child-birth; any shock, injury or disease during fœtal life, which affects the nervous organization injuriously, and thereby impairs vitality and resistance to impulses.

The social element that enters into the cause of alcoholism is very great. Individuals feel that they must do as their associates request, or be held up to ridicule by them; no amount of argument can influence them not to partake of the flowing bowl with their fellow men. They are told by their drinking friends that the liquor will not hurt them, and in spite of the evidence to the contrary, believe themselves to be numbered among the invulnerable. The toxic action of alcohol in the causation of alcoholic intoxication is the same in all kinds of alcohol, being poisonous, the toxic action being modified in a minor degree, first, by the variety of the alcohol; second, by the idiosyncracy of the drinker. The heavier and less highly rectified spirits are more toxic than the lighter. Spirits are more acutely toxic than equal quantities of wines and beers from the greater concentration and quantity of alcohol in the former, tending the more intensely to acute con-

Digitized by Google

gestion and irritation of the gastric mucous membrane, the liver, kidney, heart and brain.

What may be called the "drama" of alcoholic intoxication, is a serio-comedy in three acts: the first act being of the nature of a comedy; the second and third, more or less tragic, too often ending in a real tragedy. The opening alcoholic act of vascular relaxation displays usually mirth and jollity, elation, and exhilaration of the senses, heightening, quickening, and even riot of ideation as of pulsation. Pathological science reveals to the enlightened gaze, that all this merriment, fun and frolic, is but an unnatural toxic excitation, due to palsy of the nerves regulating the blood supply, the alcoholic reduction occasioning that relaxation and widening of the blood vessels which flush the brain and other vital organs in the same way as the rosy blush seen on the face after the drinking of an alcoholic intoxicant.

The second act of the "drama" is characterized by the disturbance in addition to exaggeration of the faculties, the emotional in their enhancement overpowering the intellectual, while the edge has been taken off perception and sensation. The vision, mental and corporal, is distorted as well as dimmed; reason and speech betray a loss of coherence, and the natural disposition is apt to be inverted. The real character of the drunkard not being laid bare, but a new and perverted *alter ego,* the abnormal product of the perversion of the brain cell, and brain function, by this poison to intelligence. The quiet become noisy, the noisy quiet; the meek become arrogant and the haughty cringing; the timid become audacious and the boisterous cowardly; liars speak the truth and the truthful lie; the religious swear and the agnostic prays. Men who have never been known to have family worship when sober, when drunk would rouse their whole household for family prayer, no matter at what hour they arrived home in the early morning. Generally, in this act, the tongue and the

Digitized by Google

limbs show indication of commencing palsy, the speech thickening, the legs trembling and no longer acting in unison. At the third act of this "drama," the curtain rises above a scene of silence, noiseless but for the labored breathing of the "dead drunken" performer. Unconscious and unheeding the "soulless mass" lies where he has fallen. Perception, emotion, reason, will are all dead, the thread of life being held only by the heart and circulation, till the narcotic death-like stupor having passed (it does not always pass), the dormant faculties once more emerge from their anesthetic torpor, as from a living tomb. Here we see palsy for the moment, apparently complete, total insensibility and a mere automatic existence.

What are some of the effects of alcohol upon the human system? First upon the metabolism. Metabolism is that process of chemical changes brought about by the power of living cells in the body for the purpose of changing of ingested food and excreting waste matter. All foods taken into the body eventually become oxidized, and the oxidized material becomes waste matter, and is therefore useless and must be kept cleared away, or else it interferes with the oxidation processes. To interfere with metabolism is to interfere with life. Alcohol destroys metabolism by producing an abnormal amount of oxidated material, alcohol being acted upon and oxidized more rapidly than other substances. The oxidation of alcohol takes place in the liver, and if an over-abundance of alcohol is taken into the system, its power of oxidation being limited is interfered with, and other toxic substances are allowed to get past without oxidation, and pass on to tissues where they may do injury. Instead of being an aid to metabolism, it weakens its defence against bacterial and other toxic substances.

Alcoholic drinks produce a species of degeneration of all vital organs of the body. The heart, the kidneys and the

Digitized by Google

brain are all seriously affected by the continuous use of alcohol. Tissue deterioration and increased blood pressure, the after results from the use of alcohol, are, without doubt, the chief causative factors in the high mortality from pneumonia, cerebral hemorrhage or apoplexy.

Food.—All substances upon ingestion act as a poison, as a food, or indifferently. Investigations confirm the view that alcohol acts as a poison upon all living protoplasm, in weak solutions irritating it; in stronger, paralyzing it; and in still stronger, destroying it. Even very weak solutions have a harmful action upon life processes. To be a food, a substance must take a part in the building up of the work producing protoplasm. Alcohol does not reconstruct protoplasm. It is claimed that after some days, the tissues tolerate alcohol and then it acts as a food. This is manifestly erroneous, for although a tolerance is established in regard to the subjective sensation, and the narcotic effect, many of its evil effects appear only after years of drinking, and grow worse as the use of intoxicants is continued. By experiments it has been shown that animals and human beings can do less work with the use of alcohol, than without it. Athletes can maintain themselves in the best physical condition only by abstaining from alcohol, as it acts very unfavorably to muscular work. A real food, even in small quantities, always acts advantageously to muscular activity. The managements of different armies have been compelled, little by little, to restrict the use of alcohol among soldiers. The abstinent soldier marches better, shoots better, is sick only half as often, has considerably fewer days of sickness, and is punished only half so frequently for desertions and crimes. Abstinence from food cannot have so favorable a result. For a comparison of the two I present the following comparative statements which are demonstrable facts and the teachings of laboratory work:

Digitized by Google

ALCOHOL AS A NUTRITIVE AND FOOD.

FOOD.	ALCOHOL.
1. A certain quantity will produce a certain effect at first, and the same quantity will always produce the same effect in the healthy body.	1. A certain quantity will produce a certain effect at first, but it requires more and more to produce the same effect, when alcohol is used habitually.
2. The habitual use of food never induces an uncontrollable desire for it in ever increasing amounts.	2. When alcohol is used habitually, it is likely to induce an uncontrollable desire for more, in ever increasing amounts.
3. After the habitual use of food, a sudden total abstinence never causes any derangements of the central nervous system.	3. After the habitual use of alcohol a sudden total abstinence is likely to cause a serious derangement of the central nervous system.
4. Foods are oxidized slowly in the body.	4. Alcohol is oxidized rapidly in the body.
5. Foods, being useful, are stored in the body.	5. Alcohol, not being useful, is not stored in the body.
6. Foods are the products of constructive activity of protoplasm in the presence of abundant oxygen.	6. Alcohol is a product of decomposition in the process of fermentation.
7. Foods (except meats) are formed in nature for nourishment of living organisms, and are therefor inherently wholesome.	7. Alcohol is formed in nature only as an excretion. It is, therefore, in common with all excretions, inherently poisonous.
8. The regular ingestion of food is beneficial to the healthy body, but may be deleterious to the sick.	8. The regular ingestion of alcohol is deleterious to the healthy body but may be beneficial to the sick (through its drug action).
9. The use of food is followed by no reaction.	9. The use of alcohol, in common with narcotics in general, is followed by a reaction.
10. The use of food is followed by an increased activity of the muscle cells and brain cells.	10. The use of alcohol is followed by a decrease in the activity of the muscle cells and brain cells.
11. The use of food is followed by an increase in the excretion of carbonic-oxide.	11. The use of alcohol is followed by a decrease in the excretion of carbonic-oxide.
12. The use of food may be followed by accumulation of fat, notwithstanding increased activity.	12. The use of alcohol is usually followed by an accumulation of fat through decreased activity.
13. The use of food is followed by a rise in body temperature.	13. The use of alcohol may be followed by a fall in body temperature.
14. The use of food strengthens and steadies the muscles.	14. The use of alcohol weakens and unsteadies the muscles.
15. The use of food makes the brain more active and accurate.	15. The use of alcohol makes the brain less active and accurate.

Digitized by Google

From time immemorial the strength-giving properties of alcohol have been an article of faith with mankind, and through an erroneous professional theory, they have come to sanction its use as a nutritive and food.

Tolerance.—Susceptibility to alcohol varies as much as susceptibility to other poisons. Some persons would be killed by half a grain of morphine, others would tolerate many times this quantity. The amount of alcohol tolerated by a robust man would be most disastrous in its effects upon a child or woman. Nervous susceptibility, the condition of the eliminative organs, and the sensitiveness of the circulatory system, modify the effects of alcohol. No one can determine the tolerance line in any individual. There are people who have been known to drink in the following proportions during each twenty-four hours:

Fifteen drinks of whiskey, ten glasses of ale.

One quart of whiskey, fifteen glasses of beer.

One quart of whiskey, ten glasses of beer, four Manhattan cocktails.

One and one-half pints of whiskey, ten glasses of beer, one bottle of champagne.

Two quarts of whiskey, fifteen glasses of beer.

Twelve drinks of whiskey, five glasses of beer, bottle of wine.

One pint of whiskey, thirty glasses of ale.

Two quarts of whiskey, twenty glasses of ale.

Three quarts of whiskey, six drinks of gin.

Four quarts of whiskey, one quart of brandy.

Two quarts of whiskey, one quart of brandy.

It is well known that tolerance to poison is not the only result of its action, but almost always there is associated with it, especially in the case of the nerve poison, the well-known crave, that is, the desire for larger and larger quantities. Now it is exactly these undesirable subsidiary effects that are the cause of the alcohol evil. If with the getting accustomed to it its results were all accounted for,

Digitized by Google

there would be no ground for opposing the habit, or for the existence of an abstinence movement. But the medal has two sides: one side shows us apparently a friendly picture, for it shows us that the condition of drunkenness is beginning in one not yet accustomed to comparatively moderate doses, and that it is wanting when one has grown immune to either small or large quantities; an odious caricature grins at us from the reverse side, for it shows us that not only must one drink more to be intoxicated, but the initial feeling of pleasure for the sake of which one indulges himself, is also deferred. This sensation of pleasure becomes necessary, and its omission brings a feeling of discomfort since the susceptibility and sensitiveness of the nervous protoplasm have been lowered, the removal of the feeling of discomfort requires larger and larger quantities. When the quantity passes beyond a certain limit, other organs than the nervous tissue are affected, and finally the structural or organic changes are affected in the body. If we would know on what the toleration of alcohol depends, we must know what the action of it is as a poison, where it takes place and what are its direct results in living bodies. These questions are answerable with some accuracy. The point of attack is the protoplasm, and its action consists in a more or less widespread destruction of its cellular tissue. It is believed that all living protoplasm is extraordinarily sensitive to chemical action. It is destroyed by a comparatively moderate mechanical, thermic or electric force, and it is not thought likely to react differently to chemical energy. Indeed the chemical effect from a weakened action of the poison is not different from that resulting from a weakened mechanical, thermic, or electrical irritation. In offering an explanation, it can be said that it is believed that the poison molecule, either as a whole or through a single atom, or atom group, strongly attracts a certain part of the protoplasm molecule. The latter, being highly complex, is especially

Digitized by Google

easy to decompose. In some cases it is supposed that this attraction is deficient, so that these protoplasms are spared by a poison, while others are promptly destroyed. The individual has never lived long enough to get the best of alcohol, and every person who uses it steadily will, in time, if he lives long enough, become poisoned by it, and subservient to it. No one, in my opinion, ever started in drinking from any cause with the idea that he would let alcohol master him.

ALCOHOL AND MORAL DEGENERACY.

A close study of this side of our subject proves that wherever alcohol is introduced and used as a beverage, the moral tone of the people diminishes. By paralyzing, or deadening the mind, these beverages lead to a forgetfulness of poverty and misery, for the time, and produce a feeling of well-being. They remove the restraint which the mind should ever exert over the baser passions and lead to sensual gratification. An inebriate, once asked which one of three things, "wine, women and song" he would do without, unhesitatingly said he would cut out the song. Throughout the slums of various cities and countries you will find that the misery and poverty come chiefly through ignorance and alcoholism. The poor, ignorant man or woman, who judges only by what they feel and by what they see, can hardly appreciate how true it is "that wine is a mocker, and he that is deceived thereby is not wise." Not only the ignorant, but the well educated refuse to acknowledge until it is too late, that alcohol can produce the results in them that they see produced in others around them. Alcohol makes the poor man quiet and believe he is rich, when in fact he is poorer than before he drank. It makes the sick man feel and believe he is well, and improved in health, when, in fact, he is in a worse condition, and when the recoil comes he may find that his system has been shattered beyond all

Digitized by Google

hope of recovery. Look at the inmates of our county farms, insane asylums, jails, state prisons, and at the records of our police court. The greater part of them have gotten into these institutions through the effects of alcohol. Crimes have been committed under its effects by people who would have otherwise made good citizens. The professional and business world have been robbed of some of its members who would have become famous in their chosen fields of labor had they not become addicted to, and held firmly in the grasp of King Alcohol. The relation of alcohol to vice and crime is not to be settled by mathematical complications and comparative statistics, but by physiologic and clinical facts. Let us look again briefly to the action of alcohol upon the nervous system. We will assume that a maintenance of nervous equilibrium is absolutely essential to right thinking, and right acting, this from the physiologic, not from the moral viewpoint. This being true it is obvious that anything that seriously impairs nervous physiology, must necessarily impair the individual's conception of his proper relation to the community. Granting that this is not seriously impaired, but is overbalanced by animal impulses, all that is necessary to impel to criminal or vicious acts is a corresponding inhibition of the will. That alcohol brings this about cannot be denied. The loss of environmental control is of special importance, for with it comes the removal of the thin veneer imparted by civilization in its broadest sense, and the immediate cropping out of the animal, that this veneer so difficultly and so imperfectly conceals. The dosage and individual characteristics determine, in conjunction with environment and heterosuggestion, the degree of viciousness or criminality that results. Theft, murder, suicide, assault, sexual crime, indecency, sexual perversion, any or several of these may result from the action of alcohol on the nervous centres. That the sense of moral responsibility can remain unimpaired by the excessive use of a

Digitized by Google

poison that seriously disturbs all the viscera and particularly the brain, is impossible. A drug which impairs brain function down to the point of coma, is not likely to leave the moral sense unscathed. Alcohol is not a cause of all classes of crime. Great crimes demanding mental activity, keen perception, cleverness of conception, intrepidity, fixity of purpose, great mechanical skill, fertility of resource, or a profound knowledge of human nature, are not perpetrated by alcoholics. Petty crimes and crimes of impulse and emotion, especially, are characteristic of alcoholism. The occasional drinker is more apt to commit crimes of impulse than the steady drinker whose consciousness of right and wrong is palsied, but who is too sodden and inanimate to respond to sources of acute brain excitation. It is estimated that fully seventy per cent. of crimes of impulse, brutality and emotion are committed by persons whose brains are alcoholized. The central organs of control are out of use for the time being, and at such times certain subjects are very dangerous. I say certain subjects advisedly, for all do not act alike under alcohol. Whiskey is a great demonstrator of character. The old adage, "What 's in a man when he is sober, comes out when he is drunk," had more than a germ of truth in it. *In vino veritas* was meant in a literal, not a figurative sense. The true dipsomaniac almost invariably has criminal tendencies, that may develop at any time. His criminality, like his periodic sprees, is of an explosive type, and the impulse to kill is especially likely to develop suddenly like an epileptic seizure. Excessive indulgence in alcohol often so lessens the earning capacity of the victim, that sooner or later he cannot obtain the means to purchase his enemy. His moral sense is lowered, his appetite for liquor increases day by day, and, should necessity demand, he will steal either liquor, or money to buy it, or articles that he can sell to obtain money. Few realize what the craving for liquor means. In brief, alcoholism

Digitized by Google

should be regarded as a disease-producing vice and a vice-producing disease.

ALCOHOL IN THE ETIOLOGY OF MENTAL DISEASE.

Alcohol is a potent factor acting directly and indirectly in the development of mental and nervous diseases. Heredity, bad environment, the infectious diseases, and faulty education, number victims by thousands, but the effects of alcohol surpass them all. It is so subtle, so far-reaching and transmits its baneful influence from generation to generation, to such an extent as to make its potentiality for evil far surpassing any other etiological factor. The great power alcohol has in developing and perpetuating insanity and nervous disease is due to its striking effects manifest on the vital organs of the body which, in part, are as follows: On the stomach and intestinal tract its functions and its nutrition are seriously impaired; on the circulatory system by increasing the frequency and force of the heart's action, dilating unduly the capillaries generally, and of the brain specially, directly interfering with the nutrition of the brain cells, by the too rapid movement of the plasma, and by blocking the perivascular spaces, and its continued use inducing fatty infiltration of the heart muscle, and an atheromatous condition of the arterial walls; on the brain, spinal cord and peripheral nerves, upon which it acts as an anesthetic, not as a stimulant, the apparent stimulating effect so often manifest being due to its depressing effect on the inhibitory apparatus, and therefore not an evidence of increased energy. Its continued use causing an increase of neuralgia and an atrophy of the nerve cells on the liver; the liver cells enlarge, become infiltrated with fat globules, the connective tissue cells proliferate and eventually there is produced a cirrhosis of the liver. On the kidneys the function is disturbed by an increased output of fluid, but with a diminution of urea in these organs, the irritating results

Digitized by Google

manifest themselves more slowly than in the liver, but in the same manner and in the end the cirrhotic kidney is produced. Is it any wonder that this agent is potent in producing various psychoses or neuroses? Its first effect upon the mind is to produce an agreeable excitement, a lively flow of ideas, and a general activity of mind, a condition not unlike that which oftentimes precedes an attack of mania. Then follows, as in insanity, sensory and motor troubles, and the automatic excitation of ideas, which start up and follow one another without order, so that more or less incoherence of thought and speech is exhibited, while at the same time passion is easily excited, which takes different forms, according to the individual temperament; after this stage has lasted for a time, it passes into depression and maudlin melancholy as convulsions pass into paralysis; the last scene of all being dementia and stupor. The different phases of mental disorder are compressed into a short period of time, because the action of the poison is quick and transitory; but we have only to spread the poisonous action over years, as the drunkard does, and we get a chronic and enduring insanity in which the foregoing scenes are more slowly acted, or, if death, cutting short the career of the individual, puts a stop to the full development of the tragedy in his life, we may still have it played out in the lives of his descendants, since drunkenness of the parent sometimes becomes the insanity of the offspring.

In the matter of heredity, the disease is becoming more marked as time advances. There was a time when practically only men partook liberally of the alcoholic beverages. To-day women are drinking to a great extent, thereby increasing the weakness of their offspring by so doing. There is no question that the predisposition to alcoholism is greater in the offspring of parents who drink. It does not necessarily mean that their offspring will drink, but they are more liable to do so, and when they do start in to drink,

Digitized by Google

their systems are more readily susceptible to the poisonous effects of alcohol than as though their parents had not drunk. The manner of the heredity question has been aptly illustrated, as follows:

First Generation.—Depravity, alcoholic excess, degradation.

Second Generation.—Drunkenness, maniacal attacks, general paralysis.

Third Generation.—Hypochondrical tendencies, melancholic, suicidal and homicidal tendencies.

Fourth Generation.—Undeveloped intelligence, mental obtuseness, sterility and extinction of race.

A careful study of alcohol has led to the belief that fifteen per cent. of all cases of insanity may be attributed to alcoholism. The commission of lunacy for Great Britain in their report of 1906 said that in private cases alcohol was the cause in 16.7 per cent. of males, 8.5 per cent. females; in pauper cases 23.3 per cent. males, 9.3 per cent. females. The Danvers (Mass.) Insane Hospital annual report gives the following report of male cases produced by alcohol: 1903, 19.8 per cent.; 1904, 18.9 per cent.; 1905, 23 per cent.; 1906, 25.6 per cent.; 1907, 27 per cent. Practically then inebriety means degeneracy, the subject being usually primarily defective in nervous structure and will power. If he was not so primarily, he has become so by the action of the drug habit.

TREATMENT.

Alcoholism, or inebriety, has its etiology, its pathology and its treatment. It is essentially an irresistible, uncontrollable and periodic desire for alcohol. It is not thirst, and while the crave is present the appetite knows no satiety. Its treatment must be conducted along three lines, namely: influencies which incite or strengthen moral resolution, medicinal, and control and enforce abstinence. The medicinal treatment must serve the purpose of elim-

Digitized by Google

inating the alcohol from the individual system, reconstructing the nervous and digestive apparatus, supporting the circulatory system, and again restoring the individual to the normal condition that he was in before becoming addicted to alcoholism. The question of inebriety is as important from an evolutionary standpoint as is any other condition bearing upon the physical and social welfare of the race. The moral factor *per se* bears no more relation to the causation of inebriety than it does to typhoid fever. Certain moralists claim that inasmuch as the inebriate wilfully took the first drink, the question is of moral significance only. This is as logical as that typhoid fever is to be cured by moral persuasion, because the victim voluntarily drank water containing the germs of the disease. The moralist forgets that he is not confronted by the man as he took his first drink, but by one who has systematically abused his physiologic functions. Admitting that in certain cases the insatiable craving for liquor is a result, and not a cause of alcoholism, the physician must accept the physical conditions as he finds them. He is called upon to treat a man whose tissues and organs have been saturated and thoroughly poisoned by a powerful drug. No logical physician claims that a morphinomaniac is to be treated entirely upon moral grounds. Such subjects are none the less diseased if the craving for morphia is a result of the drug, and did not exist primarily. Moral persuasion will not restore a gin liver or kidneys to a normal condition. Any person who attempts to treat habitual drunkenness without the use of drugs for relieving unpleasant symptoms during the transition from long continued drunkenness to enforced sobriety, and to guard against complications that are likely to occur during the "knocking-off" period, is neglecting potent influences for good. The first principle in the treatment of inebriety, or alcoholism, be it acute or habitual, is the removal of the alcohol; and then, in order to effect a cure, to so build up

Digitized by Google

your patients morally, mentally and physically, that they are not only willing, but able and capable of standing alone. To those treating alcoholism as a specialty, the patients are divided into several different classes, each class distinct in itself, and each requiring certain lines of treatment, if satisfactory results are to be obtained. There is the steady drinker, one who takes anywhere from one to three, or possibly five, drinks a day. Possibly the individual is never completely intoxicated or, in other words, drunk, yet he requires that certain amount of alcohol to keep him, as he says, in condition to do business. Again there is the periodic, one who every so often, varying from two or three weeks to as many months, or possibly years, starts in to drink at those stated periods, and follows it up until he gets thoroughly sickened and exhausted from the effects of his debauch. He will then sober up, either with or without medical aid, and between these periods will not partake of alcohol in any form. Still another class is that of the combined steady and periodic. This class drink day by day moderately, attending as well as possible to their work, breaking out every little while on a regular drunk, casting work and everything else to the wind. The steady, moderate drinker may be as much of an alcoholic addict as the periodic or combined drinker, although he may not be classed as an habitual drunkard or inebriate from the fact that he maintains control over himself. If he fails to maintain control over himself he graduates into one of the other classes, and attaches to himself the title of inebriate. If the moderate drinker can be convinced of his precarious condition, and submits to proper treatment, using all the nerve force possible to aid him to cut loose from his environment, his recovery is speedy and usually permanent, as his system has not shown any mental defect to prevent his rapid and complete recovery. The treatment of this class of cases, as in the others, is: stop the ingestion of alcohol, eliminate that

Digitized by Google

already in the system by means of relieving the congestion of the stomach and liver by small doses of calomel until the bowels move freely, followed by effervescing salts, as sal hepatica or Epsom salts. At times better results may be obtained from the use of compound cathartic pills. For the stomach, some of the bitter tonics, as gentian combined with iron, nux vomica and dilute phosphoric acid. Also hypodermics of nitrate of strychnine in large doses, repeated frequently enough to steady the circulation and tone up the nerve force of the patient. I would here speak of the Oppenheimer treatment, the remedies used by that institute are now procurable by any physician, and I am sure that when rightly given are sure to give rapid and satisfactory results, as far as medicinal treatment of alcoholism is concerned. The medical treatment in severe cases of delirium tremens or drunkenness of severe type, acute or chronic excesses, may be along the same lines, except it is usually a good plan to empty the stomach with an emetic of which I think apomorphine is the best. It not only empties the stomach but acts as a sedative, giving the patient sleep, which is so necessary. Hyoscine, alone or combined with bromide of soda in thirty to sixty grain doses well diluted with water, may be added when necessary. Empty the lower bowl by enema, after which give saline enemas to relieve the desire for fluids by mouth, which if taken are usually vomited. Cracked ice, given in small quantities, gives marked relief. Various modes of treating drunkenness have presented curious eccentricities. Thousands of years ago boiled cabbage was employed by the Chinese to restore the worn-out alcoholic debauché and refit him for a fresh bout. The Romans resorted to an emetic for a similar purpose. Raw meat and a vegetarian diet were declared to be a "perfect cure," as also was a spiritus batrachian extract, metaphorically, the "hair not of a dog but of a frog." The stocks, flogging, and even capital punishment, have been used in accom-

Digitized by Google

plishing a cure in inebriety. Hypnotism and surgery have aided us in restoring not a few alcoholic addicts in the last few years. Drugs of various kinds, almost too numerous to mention, have been lauded to effect cures in every case in a short period of time. While in acute cases, and those in whom the mental balance has been impaired to only slight extent, the right kind of drugs, rightly used, will accomplish this purpose, others require another sort of treatment, and that is control. The one *sine qua non* of genuine treatment is unconditional abstinence from every thing intoxicant.

Every sound man, be he abstainer or otherwise, must acknowledge a personal responsibility in regard to the care and treatment of the unsound, and a moral duty to protect himself and his weaker friends from the disgrace, ruin and danger which accompany inebriate habits. Viewed from an alcohol drinking standpoint, all classes of society may be divided into those who take alcohol and those who do not. The alcoholic takers may again be subdivided into (*a*) strictly moderate, (*b*) careless and occasionally excessive drinkers, (*c*) habitual drunkards. So far, however, as an habitual drunkard, inebriate, chronic alcoholic, or dipsomaniac is concerned, these terms are practically synonymous. Habitual drunkard means a person who, not being amenable to any jurisdiction in lunacy, is, notwithstanding, by reason of habitual drinking of intoxicating liquors, at times dangerous to self or others, or incapable of managing himself or his affairs. In intelligent treatment of the inebriate or chronic drunkard, so called, the special features of each case must be carefully studied, time being allowed for sound brain tissue reconstruction. This can only be accomplished through complete control of the patient. Regular life, good food, work and amusement are all necessary; in fact, all the same principles must be adopted as in the treatment of the insane. The present treatment of inebriate offenders against the law is

Digitized by Google

a fiasco and a farce, neither curative nor deterrent. Look at the police court heroes and heroines of over a hundred convictions for offences complicated with intoxication, the champion, a thirty-nine-year-old Irish woman, having a record of seven hundred convictions. The short incarceration under a wholesome non-alcoholic régime, only restores that power to get drunk which had been lost before imprisonment. It is in this way that we provide the inebriate offender with a government "hospital" or clubhouse for strengthening and confirming him in his drunken excess. This is a condition in which we need the law to help us, not only for the sake of the agent, but for those who are being slowly submerged and threatened with total extinction by a continuous current of banal excess which should be dammed up or diverted. Why should this destructive, grinding and oppressive creature be allowed to desolate his home, to endanger the good name of his wife and children and to pauperize his dependents, who ought to have the means of staying the destruction which they can see is gradually overtaking them. At present the law takes no notice of acts unless they cause harm to self or others, nor of continued evil practices which may do harm. There is, apparently, nothing to prevent an inebriate acquring a license to carry fire-arms and buying a revolver, as long as he neither threatens to, nor actually does, use it. Only when he has used it does he come within the clutch of the law, though all the time he is in such a condition that the impulse to use it may arise at any moment, and the mischief be done before it can be prevented. Is such a possibility right, either for the persons themselves or for society in general? With reference to treatment and control, the main points to be emphasized are, first, the necessity for greater attention to neurotic and psychopathic indications, and second, the necessity for an earlier recognition of these conditions with a view to the timely exercise of effective control in cases which cannot be bene-

Digitized by Google

fited by milder measures. Unfortunately however, the only chance for an attempt at early control rests with the inebriate himself, no power being available for interference with his wishes. Granting that his habitual drunkenness has been mainly due to defect in moral sense and power of judgment, his wishes are not likely to help much, and it is not surprising to find that by far the greater number of victims fail to recognize their state, see no necessity for amendment, and decline to take any steps towards remedying something which, in their opinion, does not exist. In other words, just at the time when a little compulsory treatment might be of the greatest possible advantage, no power to apply it exists; time is wasted and opportunity for good is lost forever. Various reasons are advanced by backsliders to explain their relapses, and some of them are the most trivial, as the death of a favorite dog, dull times, inharmony in family. Some drink when they feel best, others when they feel worse, and others because they deem it a satisfaction to "go off on a tear and tank up." One man argued that he had gone sober so long he was justified in spreeing till he became "mulled" which implied the ingestion of a quart of whiskey before breakfast and twenty-five bottles of beer of an afternoon. A lady admitted her motive to be the delight she experienced in drinking with her admirers and listening to their flattery and compliments.

Another lady, with a much greater show of reason, explained her periodicals as due to the accumulative brain-fag resulting from a miscellany of little worries. Many drink to dispel the blues, to induce sleep, to rouse courage or confidence. An intelligent inventor offered four reasons for indulgence: first, requirement of the system in consequence of physical depression; second, sociability; third, business necessity; and fourth, cold blood or "pure cussedness." Sometimes the drinker has no object in view, but seems to be actuated by a habit of long standing,

Digitized by Google

periodical conformity to which is fraught with discomfort and misery. The psychology of this mental state is illustrated, as follows: A friend met a farmer acquaintance on the public highway trudging along to a nearby village. "Where are you bound for, Uncle Billy?" he inquired. "I am going into Johnstown," was the reply, "to get drunk and, Oh, Lord! how I dread it."

I do not believe that any drunkard has voluntarily and of intention made himself so. I am convinced that all who possess a sufficiently developed mental equilibrium to appreciate the seriousness of their condition, have urgently and honestly desired to have a sober life, and have fought to this end, and failed in a struggle against weakness, the strength of which a normal man is quite incapable of realizing. I am inclined to believe sufficient credit has never been given to the honesty of an inebriate's fight against inclination or to the inherent weakness of power to resist impulses which renders his struggle for victory either successful or unsuccessful. When confirmed inebriety has apparently been acquired through persistently careless habits, the individual has, during the course of transit from one condition to the other, been unconscious of advancing slavery. He has honestly believed that his power over himself remained unaffected long after it had gone. It is in this class of cases as well as those of the more degenerate type that the law should supply a means whereby alcoholics can be saved not only to their families or friends, but to themselves. This means ought to be brought about by laws providing for the commitment of alcoholic addicts to suitable institutions for the proper scientific treatment of their malady, and enabling those institutions to keep their patients incarcerated until such time as they shall be thoroughly cured, morally, mentally and physically, or proven to be incurable. The form of commitment, which should be made out by a regular practitioner of medicine, could be as follows: I, being a registered

Digitized by Google

medical practitioner, hereby declare that I have visited and examined.....residing at....., and am satisfied that the said.....is an habitual drunkard, or (a chronic inebriate) and is unable to control himself, and to manage his affairs. I accordingly recommend that .....be detained in the licensed home for inebriates at .....for a period of.....calendar months at the end of which time this certificate may be, if necessary, renewed for another period of.....months, or for such time as is considered by the authorities and the friends of the patient to be advisable.

Signed, ..., Physician.

I agree to the above certificate being issued.

Name of kin or friend.

Those who could afford to pay for treatment could be committed to private institutions of reputable standing, while the state should provide a building connected with, yet separate from, their buildings for the care of those who are insane, for the care of those who have no means to pay for treatment, as this would undoubtedly be the most economical way of providing for that class of cases. In either case, the institutions thus designated should be under the direct supervision of physicians who have studied and made alcoholism a specialty, thus being qualified to properly treat cases committed to their charge. In cases that are declared incurable after a sufficient period of observation and treatment, there should be a law whereby they, too, could be incarcerated for life in institutions provided therefor, just as the incurable insane are provided for. Another phase in the treatment of alcoholism, as in all other diseases, is the removal of the cause, which should be the doing away by law of the manufacture and sale of alcoholic beverages. You may say it cannot be done by the enactment of any law. If every state would follow the example set by the state of Georgia, the control of it would produce astonishing results, and would soon estab-

Digitized by Google

lish the fact that alcohol was not absolutely essential to the general health of the community. Control by law in Georgia is most drastic and went into effect in January, 1908. It absolutely forbids the manufacture, sale, barter, giving away to induce trade, or keeping, or furnishing at public places, or keeping on hand at places of business of any alcoholic, spirituous, malt or intoxicating liquors, or intoxicating bitters, or other drinks which, if drunk to excess, will produce intoxication. Druggists are not exempt and are permitted to keep only alcohol. Even the physician can prescribe only alcohol, and this under the most stringent rules. He must register in due form the nature of the disease and the need for the remedy. He cannot fill his own prescription and the prescription must be filled not later than the day after it is dated. Not more than one pint can be ordered and the recipe cannot be refilled. The prescription must be recorded at the expense of the druggist, and the record kept open for inspection. Further, the alcohol must be delivered directly to the person for whom it has been prescribed or to the physician ordering it. Do we absolutely need alcoholic stimulation in the practice of medicine? We may allow that in certain cases it helps out temporarily, but could we not use some other and more effective drug for the same purpose, and with less likelihood of establishing the worst condition of degeneracy of our patient, an alcoholic addict? You may answer that no more addictions come from the use of alcohol than in the use of other drugs. Let me ask whose fault is it that people become drug addicts? Why do physicians allow their patients to know what is being prescribed for them? Why do they write prescriptions and allow their patients to have them repeatedly refilled for themselves, or friends or neighbors? Why not write on every prescription, "Not to be repeated." It takes only a little more time and would prevent a great deal of over-drugging by the public at large. Because we, as physicians, know the

Digitized by Google

use of drugs and lose enough of our self-control to allow ourselves to become addicted to any of their uses, we should not thrust the same affliction by our carelessness upon our patients. If those who employ us have not confidence enough in our ability and judgment in the treatment of their case without telling them the remedies used, of which they have no knowledge, they had better change physicians. The doctors themselves are largely responsible for the large number of drug addicts by carelessness in administering the drug, and in telling the patient the name of the drug or drugs administered. The public at large usually associate morphine with the use of the hypodermic syringe. They have heard so much talk regarding its use that way that some people really think it is the only drug administered hypodermically. Again, in the treatment of inebriety, there can be no compromising. A person whose system has been once thoroughly poisoned by alcohol, when relieved of the craving, so called, if he would remain free from its return must forever afterwards abstain entirely from partaking of anything which contains alcohol. They may as well drink a gallon as a dram, for if they take the dram, that dram will call for another, and still another until the old condition is again produced in their system and they will again find themselves bound hand and foot as they were in former times. It is the first drink that causes a patient's downfall, and if he fails to remember that his system, having once been thoroughly poisoned by alcohol, will always remain susceptible to its poisonous effects if he again puts any of it into his system, he will be sure to find it out by again attempting to use it in any form. Right here let me ask you as practitioners of medicine, as you value your honor and reputation as physicians, to always bear this statement in mind, and be very careful in treating those who have been rescued from the bondage of alcoholic slavery, that, by any carelessness or unbelief on your part, you do not cause them to return

Digitized by Google

to it again. Everybody deplores the excessive use of alcohol, but I realize that we do not all agree to or take the trouble or the time to fully study and realize the harmful effects of alcohol in small quantities upon the human system. A knowledge of the nature of alcohol places a certain restraint upon its use, but where ignorance exists concerning its nature and deceptive influence, the devotee takes it because it affords a short period of freedom from cares and anxieties. It has been said that so far the strongest influence in breaking down drinking customs is the employer who insists upon picking total abstainers. But a stronger force, a determining force that has not yet shown its full power, will be the united voice of the medical profession, whose utterances would make short work of the liquor advertisement and would scatter the doubts of the hesitating teachers who are now waiting for conviction to fire their zeal. The clinical experience of Dr. Henry O. Marcy as a physician and surgeon in war and in peace, makes him an authority of merit; a man of keen intellect, large experience and a judicial mind, he gleaned the evidence from the great mass of testimony explaining why in twelve months we had the high mortality, so many cripples, and such enormous property losses in the operation of our well organized railroads in the United States. These facts revealed many causes, but the paramount cause was the drink habit among employees. An operator who is a temperate drinker, gives a wrong order; the train despatcher neglects to execute a proper order; an engineer under but a single drink "don't know" and don't know that he don't know, and by reckless running invites disaster. These clinical facts should stimulate closer observation, and a more critical analysis of each patient in whom mental or nervous signs are present. This duty well done, will lead us to conclude that the over-work, worry, business reverses, religion, or complaints of domestic infelicity are not etiological, but the logical outgrowth of alcoholism, the psychoses, or neuroses, which

Digitized by Google

we are asked to treat, coming as secondary or tertiary products. Upon the physician, above all others, falls the work of undeceiving the poor deceived slave of alcohol. Let us teach the poor, and the rich as well, that the cost of eight or ten quarts of beer per day, which would total up to about two hundred dollars per year, is too much to pay for the amount of nutrition that can be obtained from a five-pound loaf of bread at the moderate cost of ten or fifteen cents. They will then, if not already a slave to the habit, cease to spend money for that which is not bread, and labor for that which satisfies not. Let us teach the truth that health can only be acquired by a removal of the causes of disease, and never by the use of alcohol or any other drug continuously. By a united educational campaign, the aim of which should be to make known to old and young, by lectures in halls, churches and schools, the deceptive nature of alcohol. Again, why should we punish alcoholics as criminals, then sanction by law an evil which is responsible for their becoming criminals. Let us urge upon the people the fact that a greater proportion of insane asylums, reformatories and prisons, for which they are heavily taxed, can be done away with provided laws can be passed, eradicating the manufacture of alcohol as a beverage. When laws are passed so that instead of committing the inebriate to prison as a criminal, proper institutions for the proper treatment of his disease may be provided, a large percentage of those now addicted will become cured and again go forth into the world as good citizens. It certainly is strange that so great an evil is allowed to exist by this government, or any other government, except it be through ignorance. Any other evil that exists to any such extent is promptly banded by laws enacted for that purpose. The time has come when in the interest of the dying races, and in the interest of humanity, every effort should be made by voice, pen and vote, to suppress the manufacture and sale of alcoholic beverages to

Digitized by Google

an innocent, ignorant and deceived people. Opposition to abstinence is due to prejudice and misunderstanding of the motives and methods of its advocates. They declare abstinence impossible and hopeless, and insist that it is renouncing all the pleasures of life. Is the complete extermination of alcohol more hopeless than the extermination of tuberculosis, cancer, or the degradation and misery of the lower classes, and work for the former cause is as reasonable as are the attempts for the amelioration of any of the latter? In the summer of 1908, at Berlin, the first German total abstinence day was observed; at about this time eight hundred physicians drew up an appeal in favor of abstinence, setting forth the physical, mental and moral damage from alcohol; the resulting inefficiency, liability to disease and race deterioration, the brutality and crime which follow its use, the accompanying suffering of countless of thousands of those who are innocent of any indulgence; the many accidents for which alcohol is accountable and finally urging it as a duty to our fellows and to self-preservation to join in the conflict against alcohol. It seems to me that we, as physicians, should rise up, one and all, and take a hand in suppressing this terrible vice that is depleting the country, robbing it of its greatest asset, the physical well-being of its inhabitants. In the line of preventive medicine, which is becoming more popular every year with our profession, no riper field for action presents itself than that of alcoholism. It is time for our profession as a whole, and not as a part, to wake up and stop winking at this formidable malady, and take hold, one and all, with a determination to eradicate it. Then will not only those who have suffered from its effects, directly or indirectly, but even those who profited from the sale of it, will rise up and call us blessed.

Digitized by Google

DISCUSSION.

A. E. BROWNRIGG, M. D., NASHUA.

I think, Mr. President, we have listened to a paper of unusual interest on a subject of paramount importance, and, unfortunately, a subject usually avoided in discussions before general medical societies. Medical men usually leave to the various reform leagues matters so closely allied to moral, social and political issues. And rightly so, in my opinion, for I do not think it is the province of the medical profession to advise on ethics, religion or politics. I think the reader then is deserving of special commendation for his fortitude and good sense in bringing the medical aspects of alcoholism before this society.

While some may differ with him in minor points, his main propositions are so well known and have so long been acknowledged by physicians that the wonder is that so few of the public, except the better educated, are at all aware of the strictly medical dangers of alcoholism.

I consider that the dangers in alcoholism are a greater menace to health than to morals, to life than to religion, to the "generations yet unborn" than to the politics of the present. And it is questions of health and of life and of hereditary influence that constitute our province "par excellence."

It is no new thing that excessive alcoholic indulgence may cause Bright's disease or cirrhosis of the liver. From an analysis of insane hospital statistics, from ten to fifteen per cent. of the immense number of admissions throughout the country are directly due to alcoholism. Besides these aggravated cases, how many more cases of nervous illness or mild mental breakdown due to the same cause there are, it would be hard to overestimate. It is notorious, too, that chronic alcoholics become impotent or sterile; and that, from the children of alcoholics are recruited chiefly the armies of epileptic, imbecile, idiotic and degenerate that fill our homes for feeble-minded and increase the criminal

Digitized by Google

classes. Furthermore, we know that the alcoholic habitué is definitely handicapped in his fight against infectious diseases, notably in pneumonia.

Now, Mr. President, while we are rightly active in public advice as to the dangers of tuberculosis and some other preventable diseases, I think our attitude regarding alcoholism has been construed by the public equivocally—either as tending to discountenance the truly exaggerated claims of political enthusiasts or perhaps as reflecting upon our own practices. It is my opinion that it would be a good thing to draw up a resolution stating carefully and sanely the menace of alcoholism from a strictly medical standpoint, as an authoritative and unbiased scientific statement, and have it published as part of our transactions. If carefully worded it could not be made political or sensational capital and in an educative way might do incalculable good. I, therefore, move you, Mr. President, that a committee of three be appointed by the Chair to draft such a resolution and present it to this society.

The President appointed Drs. A. E. Brownrigg, H. E. Mygatt and George C. Wilkins, and subsequently they reported the following resolution which was unanimously adopted:

WHEREAS, The public acknowledges the medical profession as its chief counsel in preventive medicine, therefore, the New Hampshire Medical Society in annual convention assembled begs to record its belief, that the abuse of alcohol is the cause of a large percentage of diseases of the kidneys, liver and other bodily organs; that alcoholism is especially responsible for an alarming proportion of mental and nervous diseases; that it is a cause of sterility and race suicide in parents, and tends to the production of degeneracy, imbecility and mental instability in their offspring; that alcoholism tends to lower its victims' natural power of resistance to infectious diseases; and, that it is their opinion that alcoholism is a preventable disease but rarely permanently cured.

Digitized by Google

SOME TENDENCIES IN MODERN MEDICINE.

JOHN W. STAPLES, M. D., FRANKLIN.

I have thought it might be of some profit if my address should take note of some of the tendencies of modern medicine as affecting our relations with the lay public, public institutions of charity and hospitals.

It cannot have escaped the observation of the younger physicians with limited experience, and it is borne in upon us who have practiced medicine for more than a quarter of a century, with convincing force, that the science of medicine has made rapid strides toward the mastery of those malign forces that have scourged the world in plague, pestilence, infection and contagion.

The scientific spirit, not vaunting itself but courageously seeking the truth, has made for greater honor, higher efficiency and clearer vision to our profession. It is in the role of preventive medicine that its greatest and most fruitful victories have been won. More and more the profession are seeking out the ways by which the plague, the pestilence, the contagious and infectious diseases may be prevented. Failing longer to explain the visitations of disease as manifestations of offended deity or an inscrutable providence, but accepting disease as the result of natural causes for a large part preventable, the medical profession, with an altruistic purpose, has sought to make plain the safer and healthier ways of life.

It is a monumental work to have wrested from the spirits and demoniac forces of the under world their power to set free upon human kind typhoid fever, typhus fever, diphtheria, tuberculosis and other diseases. No longer by pilgrimages to a shrine, by scourgings and stripes, by expi-

Digitized by Google

atory offerings upon the altars of credulity, superstition and magic, but in the laboratory, with the reverent spirit that through all the ages has been the handmaiden of truth, the great epoch-making problems of preventive medicine are being solved. The judgment of that court of highest appeal brands the community where typhoid fever prevails, as lacking in the essentials of modern sanitation.

Every water supply and every milk supply must give an account in the laboratory of the deeds done in the body. The water that a few years ago was drawn from the crystalline depths of the family well in the old oaken bucket of sacred memory, is now rejected as vile and dangerous by the bacteriologist, while milk to be considered safe must be drawn from healthy udders by clean hands into clean utensils, under conditions of personal and domiciliary cleanliness for the cow. Consider the decreasing amount of illness, the lessened mortality in infant and adult life by the use of pure water and pure milk. The public, with fuller knowledge, will be more insistent than ever that conditions as nearly ideal as possible shall prevail. The whole list of contagious diseases which has scourged the world has been shorn of its power to destroy by the applied investigations of modern sanitary medicine, or by vigilant quarantine has been kept in narrow confines. This work is progressing very rapidly and promises a richer fruitage in the coming years. The mosquito that has sung the joys of battle in the silent watches of the night as he has thrust his malarial sting beneath the skin of his antagonist, finds his death warrant recorded by the discovery of the microscopist under an oil immersion lens and by practical experiments in segregation and inoculation. The rat seeks in vain a hiding place since in his pathway has been found the trail of the plague. The hook-worm, unmolested for generations, somnolent in a somnolent people, who have been called shiftless and lazy, finds itself disturbed from its sleepy dream by a scientific enthusiast, and

Digitized by Google

the hook-worm must go on the Rockefeller Foundation. Thus it is that this fight against disease is going on, none the less critical and momentous because the work is carried on quietly, without the flaring of torches and the beating of drums. All honor to the sturdy, patient workers, who have studied out the lessons that profit so much in warding off from mankind the great scourges of wasteful diseases, whose power has never met a successful challenge through all the ages. This rapid change for the better shows a tendency in medicine toward the role of preventive medicine in the future. It is not difficult to forecast what this means to the medical profession. It means, for one thing, that the medical colleges must graduate less men and men better equipped. It means without a rearrangement of values a diminishing amount of income. It will probably keep the promising and financially poor student from the field of medicine and it will give a splendid opportunity to the student who takes medicine for its scientific values, without much consideration of financial return. In that time we have dreamed of, but never expect to see, the physician can face his patients, tell them the naked truth, that it is something else than drugs they need, and thank the gods of destiny that that repository of medical rubbish and ancient haberdashery, the United States Dispensatory, has been cast in large part to the limbo of magic with Perkins' metallic tractors, the thirtieth trituration of Hahnemann and the malignant animal magnetism of Mrs. Eddy. Less and less will the drug doctor with his pill and elixir of magic come up to the full measure of requirement.

There must be, however, a compensatory readjustment of the value of medical service between the diligent, competent, progressive laboratory worker in chemistry and bacteriology as bearing on preventive and clinical medicine, and the public who are served by their labors and investigations. We all have reason to know how the great

Digitized by Google

public look upon a professional visit or professional advice when no drug is prescribed. The fee seems thrown away. The people are not to blame, for their teaching and experience have led them to expect as much. Transgressing the laws of good sane living, people expect a pill or potion for every ill flesh is heir to and we are compelled to dwarf ourselves, to do a little magic tinkering to keep our patients from going to someone else who has a specific for every ailment, if he is sent for in time. But in this particular there is gradual improvement and an increasingly large number of people appreciate the honest treatment of advice and no medicine. It is a vital question, however, how the physician of the future, honest with himself and his patients, shall obtain a just compensation.

The jealousies, dissensions and lack of co-operation on the part of physicians have made it possible for the governing boards of charitable institutions to dictate or prescribe the scope of the work and the payment for the services of attending physicians. It is humiliating to every high-minded physician, who has a just pride in his profession and loyalty in her service, to find the average politician looks upon the physician as an easy mark. Is it not time that we get together and stand together to obtain from county commissioners, town and city officers, and officers of administration generally, the respect and justice we ought to deserve and receive? I know the subject of contract medicine for fraternal orders is a delicate one to manage. I think the State Medical Society has expelled one or more members for making non-remunerative contracts, and has kept, on account of this action, quite a number of physicians from joining it. With some reluctance and not a few misgivings I voted for the expulsion of a member from the State Society, who was engaged in contract work, and I am not quite sure that I did the right and manly thing in so doing. The physician who does contract work of to-day is not of to-day; he is the product of conditions we

Digitized by Google

have tolerated for a long time and which we have made for ourselves, and it is not quite in honor for us to deny our own progeny. I do not wish to do contract work—I very much wish conditions of medical practice were such that no one would wish to do contract work, but I have a tender feeling for the young physician who is compelled, or thinks he is compelled—a mistaken notion very likely—to do contract work or leave the profession. Let us question ourselves, if we are not as a profession responsible for the very conditions that make contract work possible. How can the physician of the present, honoring himself and his profession, do the work of public institutions and corporations and not lower the ethical standards of the profession.

Hospitals are being established everywhere and the hospital idea is growing. When preventive medicine, fostered by the medical profession, public health boards and sanitary experts, reaches its highest state of efficiency there will be signs of vacancy in some of their windows. Hospitals are no longer places where those who enter lose all hope. Yet it is undoubtedly true, except under a system of most rigid examinations by hospital boards, that many people enter hospitals for gratuitous medical and surgical treatment, who are better able to pay their physician for his services than he is to give them. It is safe to say, I think, that the opening of every hospital for charity work with the regulations in vogue for the rendering of service free on the part of physicians and surgeons, means a somewhat lessened income to the profession as a whole. I was told by a leading physician of this state some years ago, that the establishment of a hospital in his city was a loss to his personal income of a thousand dollars a year. The relations of medical men with hospitals have brought unnecessarily heavy burdens on the profession, burdens that should have been shared to a larger degree by the general public. That hospitals have been able to command the best surgical and medical talent to care for the unfortu-

Digitized by Google

nate poor is well and a matter for congratulation; that hospitals have been able to command such talent for the care of the well-to-do, who could pay their physician or surgeon a reasonable fee, is an injustice to the medical profession. No physician ought to hesitate to render service gratuitously to the sick poor in hospitals as well as outside, but why he should treat patients in a hospital for nothing that he would refuse to treat outside for nothing because of their ability to pay, is a problem in ethics I shall not attempt to solve, and that can be left to hospital corporations and hospital staffs. For a physician who lives in comparative comfort and even luxury—and there are a few such—to treat in hospitals without compensation people of ample means, thereby depriving the medical profession of their legitimate income, seems to me as vital a question to the profession as contract medicine. There is no gainsaying the fact that some hospitals have exploited the medical profession to advance their selfish purposes, for a hospital established for humanitarian purposes can be selfishly conducted. I think there is a present tendency, however, to establish more equitable relations between hospitals and their staffs. I may be pardoned for referring to a hospital recently established in my own city where this condition exists. On January 1 of this year the Franklin hospital was opened with regulations that seem to me equitable to all concerned, the hospital, the hospital staff, and the general public. There is a hospital staff, including all the physicians of the city, who serve in rotation. The staff has a chief and two assistants who are promoted at the end of each month, so there is never a decided break in the staff. The second assistant, and those who follow him thereafter, will have three months of continuous service. The staff serves all charity patients gratuitously but it is permissible, but not obligatory, for any physician to charge and collect fees from patients who are paying patients to the hospital, as he would from the same patients

Digitized by Google

outside the hospital, as their financial circumstances permit. This places the hospital and the physician on the same footing in the division of the charity charge and allows the patient free choice of his physician. This is democracy applied to hospital management. I have spoken of these tendencies in medical evolution. They are vital questions to us. We must meet them sanely and squarely for the honor, growth and success of our profession.

What practical suggestions can I make? What solution of the problem can I give?

First.—Better self-education in the problems of preventive medicine, so insistent for solution they cannot be disregarded. At the same time let us insist individually and by professional concert, that such service is infinitely more valuable than the ordinary medical service and must be paid for. In other words let us go to school again in a post-graduate course until death compels graduation. Whether we do this under the auspices of the American Medical Association or in some other way we all shall be gainers, the older members of the profession quite as much as the younger. By our solidarity we are very much like peoples separated by mountain chains or other natural barriers, suspicious of motives, jealous and unfriendly. Coming together, considering common problems together, getting better acquainted in our professional household, will give us a better opinion of one another, drive away suspicion and gain the public respect. It is true of the medical profession as elsewhere, the more friendly we are the greater our power in the community.

Second.—By concerted agreement let us serve notice on politicians of every stripe and public institutions of charity and otherwise, that the services of the medical profession are not up at auction.

Third.—Meet hospital boards with a spirit of generous consideration for the deserving and undeserving but unfortunate poor, but refuse to treat well-to-do people for nothing.

Digitized by Google

It is for you, the younger members of our profession, virile, courageous, unhampered by the dicta of the days that are dead, to take up this work and bring it to a happy conclusion and a richer fruition. Let no one of us ever grow so old in thought or purpose as to fail in aiding you, by our knowledge and experience. I would ask for you as for myself, the heart-hunger toward our profession, that moved the aged Ulysses in his quests "beyond the utmost bounds of human thought," the heart-hunger of old age, defiant of time and circumstance, unconquered and unconquerable in the pursuit of truth.

DISCUSSION.

ABRAM W. MITCHELL, M. D., EPPING.

Without any question medicine has so many tendencies that it would be impossible for a man to anticipate what a writer or speaker would take up. We are all under a debt of obligation to Dr. Staples for his able and thoughtful paper, for we have relations to each other and to our patients other than simply those of medicine, a social, moral relation. It seems to me that he has gone over this question very thoroughly, clearly and candidly, and that the whole matter of our relation with each other and to our patients can be brought down to the Golden Rule by doing by others as we would be done by were the conditions reversed. That will cover the matter of charging, the matter of management in hospitals, the matter of contract practice and all of our mutual relations. We are really in a stage of transition from methods ancient and methods modern. Medicine is now coming grandly and scientifically into her own as a more exact science, and I believe that our relations with each other and with our patients are changed and the change is not always due to us. I believe that the patient is learning to look upon his doctor more as a pilot than a wrecker, as in the past.

Digitized by Google

JAMES B. WOODMAN, M. D., FRANKLIN.

I think that in the future all our public health officers will hold a more important place. They will be better paid and they will be given more authority, a broader scope and will be more efficient The inspection of the sanitary condition in public buildings and in fact every place will be more fully and scientifically carried out. The crusades against tuberculosis, gonorrhœa and all the other preventable diseases, will be pushed further toward ultimate success by enlightening the public. All of our state institutions will be given greater scope and will do more and better work. This all means an enormous cutting down of disease and the gathering together of much of it that remains in large centralized institutions. This all augurs well for the public who are treated, but badly for the practice of medicine of the remarkably large number of men that are engaged in that field of work. Bear in mind that physicians are not producers directly. They do not add anything to the food, shelter or clothing of the people. For every producer in Massachusetts there are three parasites, as the socialists call them. If every man were a producer, each would have to labor only one-third as long. However, a certain number of physicians are required to keep the profession up to its highest efficiency. All in excess of this number are superfluous. One of the tendencies of modern medicine will be to bring the number of physicians more nearly where it belongs. The money spent in educating three doctors will be spent in educating one. This will be a gain to the state and it will be enormous by giving the state two more producers and by giving the medical service a much higher efficiency. One will do the work of three on the average. This probably means greater endowment for medical schools, higher entrance requirements, better instructions, smaller classes and much more attention to each member of the class. The small school will give personal attention to the few

Digitized by Google

men of the future. It is quality; not quantity. It will also mean more at work in the laboratory and hospital and that field of preventive medicine, including all its branches. The medical school that can give much personal instruction to a few men ought to have a great future.

DR. STAPLES.

This question vitally concerns, it seems to me, every medical man, not only in New Hampshire but in fact all over the United States. I was very much interested lately in reading an article by the ex-president of Boston Tech., who is now at the head of the Carnegie Foundation, in regard to the number of physicians in the United States. It seems that we have, according to population, two physicians for every one in England; four for every one in France; and five for every one in Germany. There are in this country one hundred and fifty medical schools, of which eighty-two are connected in some sort of an organized way with colleges and universities, many of these, however, having merely a nominal connection. The first move along the lines of improvement that will give us a better class of physicians is an entire change in the medical schools. We have evidently three times as many medical schools as we ought to have. We have a great many more physicians than can command a reasonably fair living, and it seems to me that a great many of the so-called proprietary schools whose only reason for existence is that they give a certain name to certain men who are at the head of them, whose requirements for admission are very small and who graduate men who are ill-fitted to enter the profession, should be entirely done away with. I hope that this question will be discussed quite freely to-day, for I think it is of greater importance to the profession than many questions that perhaps seem to bear more particularly on our daily work as physicians.

Digitized by Google

HARRY E. MYGATT, M. D., NASHUA.

I think that Dr. Staples' paper is very appropriate to the occasion. Only one thought comes to me and it is along hospital line of work. I do think that many times, perhaps not in the small cities, but in the larger places, people not only come from the larger places to those hospitals, but from the smaller places to the larger hospitals in the larger cities, and they go there and succeed in getting treated practically free of charge, especially by the surgeon, when if their case was investigated they would be found to be perfectly well able to pay for the surgeon's services.

I have been given to understand that at Mayo's Hospital all patients as they present themselves for admission have been looked up before the time comes for them to be operated upon, and no matter what the previous arrangement had been, if upon investigation they have been found to have given a false statement regarding their financial condition, when they come to settle with the authorities at the institution, they are charged a fee for the doctor's services equivalent to their financial condition, and I think that is the right way to look at it. We have certainly got to formulate some plan of protecting ourselves in a financial way or the time will come when we will be relegated to the county farms for our care.

Digitized by Google

INCIPIENT PULMONARY TUBERCULOSIS: DIAGNOSIS AND TREATMENT.

P. CHALLIS BARTLETT, M. D., SUPERINTENDENT STATE SANATORIUM.

The weekly and monthly medical journals, throughout the world, hardly let a number go by without some reference to tuberculosis, and the lay press is constantly sending out an increasing number of articles on the disease. Why this wide-spread, ever increasing interest in tuberculosis?

It is apparent that the increased knowledge of this disease has made it a personal affair with everyone. Some recent autopsy reports for large hospitals show that seventy-five to ninety per cent. of all cases have tubercular lesions of some kind. Now when people know that out of a family of five, for instance, over one-half of their number have or will have tuberculosis in some form, they naturally want to know more about it. In this paper I will try and give some of the points that have been the most helpful to me in the work with the tubercular patient.

It is, of course, needless to say that the earlier the diagnosis is made, the greater the prospect of complete cure. The diagnosis of the truly incipient case is not easy, and every case needs careful study. Of course many patients do not consult a physician until they are moderately advanced, or worse, but some for one reason or another fortunately see the doctor early. Not every patient that calls for a cold or complains of feeling run down, has tuberculosis, but some have, and can be completely cured.

The very early cases may not have any sputa, and if

Digitized by Google

they have, tubercle bacilli can not be found because the bacilli can not be found until the pathological condition has progressed far enough to have broken down tissue, which allows elimination of the bacilli. The carefully taken history at this time is a great help, and when the history indicates tuberculosis, a careful physical examination generally gives us the desired information; sometimes, however, we need to make several physicals one or two weeks apart.

Unfortunately there is no one physical sign in the early case that is absolute, but a few signs and a complete history will tell us the story. If, however, after a careful search, we are still unable to make a diagnosis, I believe we should use tuberculin. If there are sufficient symptoms to have the patient seek advice, and the history has been suggestive of tuberculosis, every means should be used to prove that the disease is not tuberculosis, before we let the patient go to return again in a few months with a moderately advanced disease.

The early symptoms are not always clean cut, but are merely suggestive. Patients complain of being run down with frequent colds, or that they felt well until they had the grip, and since then have been unable to do as much work as usual without being sore and tired, with an occasional flush in the afternoon and a night sweat. Loss of weight and appetite are also very early symptoms, and when occurring without some other definite cause are very suggestive. Now in this stage there may be no pronounced cough, and, in fact, in not a few cases there is no cough until the disease is well established.

Hemoptysis may be an early symptom in some cases. We now come to the most important of the subjective symptoms, namely: temperature, which, when carefully taken for a week or more, gives us valuable information; for, no matter how early the case, there is usually some temperature disturbance. In some cases a two-hour chart

Digitized by Google

is necessary, for the rises may be slight and may occur when we are not looking for them. It should also not be forgotten that a subnormal morning temperature is often noted, even before we get an evening rise; one observer gives the normal as 97.8 to 99.6, but I believe that anything over 99.2 can be considered as temperature when we can exclude digestive disturbances.

Turban considers 98.9 the limit of normal mouth temperature and 99.3 when frequently occurring as fever. In the female case the temperature should be carefully watched at the menstrual period, for during this time with a tuberoular patient, you will find a degree or more.

The pulse is also very easily affected in early tuberculosis, and even with slight lesions any exertion will give a pulse of over 100, and in young patients this is generally very marked. The next symptom is cough, and this is frequently preceded by some change in the voice. There will be times, after talking, when the patient becomes hoarse, or even loses the voice for a time, or has some huskiness all the time. When the cough begins, it is usually slight and does not attract much attention, but as the resistance is lowered and the disease advances, the cough is pronounced and is followed by marked expectoration. During this stage we can examine the sputa for the tubercle bacilli, which, when found, makes the diagnosis absolute, although a negative examination does not exclude tuberculosis.

After getting all we can from the subjective symptoms we come to the physical examination. The inspection of a truly incipient case may reveal practically nothing. We all know the appearance of the chest in a person with advanced disease, but in the incipient case we may find well-marked signs on auscultation in a chest that is well developed, and has revealed nothing by inspection. In some chests, however, we are helped in our diagnosis from the inspection. There may be some limitation of motion over

Digitized by Google

the affected side or there may be a slight supraclavicular flattening over a diseased apex. The inspection should be followed by palpation, and in some instances we can note increased vocal fremitus or a friction fremitus and, while not always present, when found this gives us one more link in the chain.

The next step in the physical is percussion, and here we gain valuable information. Of course, in the incipient case percussion will not, in itself, give us all the information we need; but as the disease progresses we get slight dullness which generally increases quite rapidly if the disease is not checked. Before the dullness we can frequently find a slight elevation of pitch. There may be also a tympanitic area around the diseased portion from the relaxed lung around the infiltrated section. If these early percussion signs are to be detected, the percussion has to be light and very carefully done, making comparisons between the two sides because of the normal difference.

There are times when the diseased area is just beneath the clavicle, and the percussion has to be made on the bone itself. We now come to the most important part of the examination, namely, the auscultation.

We do not necessarily get well-marked rales in the beginning, but the respiratory murmur may show some change in the pitch, duration or rhythm, the inspiration and expiration being studied separately. Among the very earliest definite auscultatory signs we find, is rough or granular breathing, and closely allied to this is the easily recognized cog-wheel breathing.

Another early sign is the transmission of the heart sounds found over the diseased area, especially on the left side. We next come to the rales. At the present time it is not necessary to find these in order to make a diagnosis, but when they are found it denotes a catarrhal condition. At first there is the dry crackle, which in itself is presumptive evidence of tuberculosis. These crackles are fol-

Digitized by Google

lowed by the true crepitant rales, produced by moisture in the air cells sticking the sides together. When air enters and these moistened areas are separated, the rale is produced.

These early signs, rales, etc., must be strictly localized and over a small area to have diagnostic value in the incipient case, for many of these signs can be found in minor chest troubles. The rales become more pronounced as the trouble increases, until we have more or less cough with sputa, which gives us a chance to get an examination of the bacilli.

I have already spoken of tuberculin as a diagnostic agent, and believe it should be used in many early cases when other methods fail. The technique is not elaborate and the results in the majority of instances are absolute. The old tuberculin of Koch is now practically the only one used for diagnosis. For the purpose of injection the old tuberculin is diluted with carbolic solution in a distilled water or a normal salt solution. The strength needed is a 1 per cent. and a 1-10 per cent., the 1 per cent. solution contains 1-10 cc. 1 mgm. of tuberculin, and the 1-10 per cent. contains in 1-10 cc. 1-10 mgm., so that by diluting measured quantities of these solutions we can get any strength we wish from 1-100 mgm. to 10 mgm.

For illustration, we wish to give 5-100 mgm. and we take the ordinary glass hypo-syringe and suck up 1-10 cc. of the 1-10 per cent. solution. This equals 1-10 mgm. of tuberculin. Now if we dilute this with 9-10 of the diluted carbolic solution or normal salt solution, we have a solution that each division in the syringe equals 1-100 mgm., and by giving five of these we have the 5-100 mgm. that we wished.

The different doses as recommended by the different observers have quite a wide range. Dr. Brown of Saranac Lake gives a dose beginning with 1-2 mgm., then 1, 3, 5 and 8. I have generally given tuberculin for diagnosis,

Digitized by Google

beginning with 1-10 and going to five. The best time to give it seems to be at night, and the reaction usually occurs in from four to thirty-six hours, being both local and general. There may be some redness and swelling at point of injection, with increase in cough and more signs in chest, some rise in temperature and general constitutional symptoms.

The more simple methods lately used also give fairly good results: Von Pirquet, Moro and Calumet tests. The latter test, I think, should be used with great caution and always after a complete examination of the eye has been made. The Von Pirquet test is made by dropping a drop or two of twenty-five per cent. old tuberculin on the abraded skin. It can be made with one part tuberculin, one part carbolic glycerine and two parts normal salt solution. In from twenty-four to forty-eight hours there appears, if there is a reaction, a slight redness around the area one-fourth to one-half an inch in diameter, followed by swelling and a few papules. These gradually disappear, leaving a slightly discolored area for a few days. These latter tests are valuable in that a negative test will generally exclude tuberculosis; but a positive reaction may simply mean that we have a latent tuberculosis, and does not necessarily mean an active lesion.. Now, having at our disposal all of the subjective and objective symptoms, with the tuberculin test to help in diagnosis, we can be fairly sure of being able to diagnose a case of tuberculosis, even in its first stages. There are, however, a few other conditions that simulate tuberculosis, and should be excluded before the final verdict is given.

The most confusing is catarrh of the apex, which appears after grip, especially in children. The physical signs may be identical with tuberculosis, but the course is shorter, and the tuberculin test after would be negative. There are also the conditions that may exist after pneumonia that sometimes simulate tuberculosis, and these should be carefully watched.

Digitized by Google

Many cases of tuberculosis develop insidiously after an attack of pneumonia. Having made the diagnosis of tuberculosis, what course are we to take in the treatment and what encouragement can we give the patient as to the possibility of recovery? There is no disease in which we will have to study the conditions as carefully as with tuberculosis. In the first place the positive cure takes a long time, the patient in most instances has to give up all work for months, and in many cases this seems impossible.

Professor Fisher places the economic loss to a community for each death from tuberculosis at eight thousand dollars. This, of course, includes the loss of time and wages during the early stages. Knowing this, and considering the economic standpoint alone, we want to diagnose our cases early and give them the best treatment, so that they may be cured without the great loss of time that is necessary even to arrest a moderately advanced case. Many patients have suffered and died of tuberculosis simply from lack of directions. It is the constant watchfulness and care that help to produce a cure, and not the place alone. The West was once the Mecca for all the tuberculous patients that could reach there, and many have died on the way, simply through the mistaken idea that some especial altitude or some place with little rain, etc., would be the specific that could produce the cure. If a patient has money enough to select the place that seems especially to agree with him, and can live there in comfort, so much the better; but most of our patients are not so fortunate, and are obliged to be treated at home or go to one of the state or charitable sanatoriums that may be open to them.

There is no specific, and the whole aim is to build up the body, thereby increasing the natural resistance, and only by the observance of the little details can this be done, with strict co-operation between the patient and physician. The patient should be told that there may be setbacks and that it will take time, but by sticking to it he can, in most instances, look for a complete cure.

Digitized by Google

The first requisite is pure air. By this I mean an air of low bacterial content, free from dust or smoke. The aim should be to spend as many hours as possible out of doors, for the reason that we get less dust than in the house; also, because the stimulating effect of the out-of-door life increases the appetite and aids digestion.

The food should be simple and nutritious and given at regular intervals. At first it is wise to give two lunches if the patient can handle them, such as a glass of milk or milk and raw eggs. The weight in most instances is a fair indication of the patient's condition, and a steady gain until the normal has been reached is generally a good sign; but I do not believe that a gain in weight greatly in excess of the normal is necessary or even desirable.

Rest is very essential in the first part of the treatment and should be continued during activity of the disease. Any patient that is running a temperature of 99.6 or over should be carefully watched, and in most instances put to bed and kept there until the temperature falls. This is one of the difficult things to enforce in private practice, for many times the patient does not feel badly and frequently gets the idea that he loses strength by lying in bed. This idea is generally dispelled if the patient can be persuaded to try it for a time, for as the temperature falls and the cough improves, the reason for the rest can be easily discerned. Rest in bed is also indicated if there is a weak, unstable heart or a bad irritating cough which is increased by exercise. In taking the cure the patient's room should be carefully selected, or, what is still better, a porch can be fitted up that will give excellent results. If a room is used, a south-east or west room with windows on two sides should be chosen, so that when the windows are opened there can be no dead air spaces. The most minute directions should be given in regard to life in the open, for many patients have no idea how to care for themselves. A patient can generally be very comfortable even in severe weather if time and care to properly protect himself be taken.

Digitized by Google

After the rest has produced the desired result, and the temperature has become stable and there are no contra indications, we can allow the patient to exercise. The best form of exercise for tuberculous patients is walking. It is necessary to use great caution, for one day of over-exercise may be sufficient to produce a setback that can not be overcome. With exercise each patient is a law unto himself. One patient can only walk from fifteen to twenty minutes, while another is benefited by an hour's walk. I generally tell patients that before they had tuberculosis they could exercise or work until tired, but with this disease they must stop *before* they become tired.

Besides exercise, meals and rest there are many little ways about which a patient must be directed. A cold sponge or a shower in the morning helps to increase the activity of the skin, tones up the general system and prevents colds. The whole process of digestion should also receive attention. Any digestive disturbance should be treated carefully; for anything that interferes with assimilation diminishes the chance for a cure. The difference between the sanatorium and home treatment is just here. In a sanatorium the little things can be carefully watched, and any slight change in the patient's condition can be properly met. There is also a hopefulness in a sanatorium that is often missed in a home, as the family's efforts in the patient's behalf are often misdirected. Furthermore the patient frequently overdoes in an effort to keep his family from worrying. He easily lapses from regular hours and forgets many of the little details of the sanatorium treatment.

These figures are taken from the Rutland Sanatorium report for nine years: Four thousand three hundred and eleven considered cases were discharged. Of this number 36.5 per cent. report themselves as able to work; 3.6 per cent. as not able to work; unable to trace, 32.9 per cent; 26.7 per cent. reported dead; taking just the cases from

Digitized by Google

whom we get reports, 2,890 cases, there were 54.5 per cent. still able to do an ordinary day's work.

I think you can see from these figures why the phthisiotherapist becomes an optimist. We know that tuberculosis is preventable and that education will reduce the number of cases very rapidly. The work that has been done in the last two decades has changed what was considered an incurable disease into a curable one.

DISCUSSION.

JOHN M. GILE, M. D., HANOVER.

I shall undertake no discussion of the technical parts of the admirable paper of Dr. Bartlett that has just been presented. I wish to refer briefly to the broad features of the great battle that is now on against this disease that has had so long, so black and so fatal a history. The weapon with which we fight the disease from now on is knowledge, and that knowledge is based upon the fact that we know the life history of the germ that produces the disease. Probably no other organism is any more completely known throughout the entire circle of its life history than is that of the tubercle bacillus, and fortunately that life history is one that gives us a great degree of control over it. In its active state it exists only in the living body of some warm-blooded animal and these, practically, for purposes of contagion, of two classes, the human and the cattle families, with some question about the latter. See what condition that gives us. We have the only cause of this disease, the only centres of its distribution in the living bodies of those two classes of animals.

Suppose, to-day, you could quarantine and should quarantine every individual and every animal that has active tuberculosis as you would quarantine like cases of leprosy, what would happen? One generation in the human race would practically wipe out tuberculosis. I think that is correct reasoning. Of course in an inactive form a certain

Digitized by Google

number of organisms in dusty corners live capable of revivification under proper conditions for a variable length of time, but that time is not very long as measured in years. The cleaning out of those dusty corners and the letting in of the air and sunlight and the application of formaldehyde eliminates contagion. Here then are the possibilities under the best possible conditions, which, however, we are not going to realize for obvious reasons. Such legislation could not be secured, and I don't know as I wish it should if it could. Too many of us have members of our family afflicted with the disease to take from the human race and quarantine every individual who has tuberculosis. But we are working toward the same end; our knowledge is being applied in the same but in a somewhat less radical way. That then suggests the possibilities. We do not, however, as has already been suggested, have to put away all the patients that already have the disease. It is not purely a matter of prevention. It is also partly and largely a matter of the cure of the case that already has it.

We still hear the pessimistic physician say that he does not believe that any case that is real consumption is ever cured, but that is a misapprehension on his part, due to the fact that he has failed to recognize the spirit of the paper that has just been read, which says for curative purposes you must learn to recognize incipient tuberculosis, and that is just where the physician has utterly failed. The disease is identically the same thing when there is a spot no larger than a pea in a joint or in a lung. It is identically the same thing that it is in the pleural cavity or in the lung when there is nothing but a great sloughing mass to represent what formerly was a lung. In the latter condition you can diagnose the disease across the street; in the former, it is only by the most careful and painstaking work that you can make a diagnosis. It has been established that a diagnosis is possible with a pains-

Digitized by Google

taking examination. The difficulty is that a great many patients come to our offices with symptoms which we know suggest tuberculosis, but we fail to act on the suggestion. Sometimes he may think that he does not feel as strong as he ought, and he comes around for a little tonic and after talking with him we give him a prescription for a little tonic, but that patient is going on with his tuberculosis. In another case there is a slight hacking cough and in another sweating at night, a history that might mean any one of numerous other conditions, and because it is a busy morning we fail to make the rigid examination that it is necessary to make in order to diagnose incipient tuberculosis. The case that you can diagnose across the street is of no consequence, except to segregate him so that he will not spread the disease to others, as he is hopeless. If that is what the physician means and only means that, then I admit he is correct and no case of consumption is curable. A point no bigger than a pea is just as definitely tuberculosis or the other word, consumption, if you like it better, as is the case that already has produced the sloughing of the lung.

Further, I wish to say a word in regard to our own state sanatorium, established, as many of you know, through a very vigorous struggle in two legislative sessions by the physicians of New Hampshire. I see some men here this morning who put up that very noble fight to secure the founding of this institution. It is, as you know, still a small institution, its capacity being small. The principle of its establishment, as you should know, is not for the admission indiscriminately of all sorts and classes of cases of tuberculosis. There is not room for all groups of cases. It is established as an institution for educational purposes and largely that, for the taking in of the incipient case that should be curable; so please remember the principle of the institution and do not send your cases that are incurable for admission to this institution and then feel disgruntled because they can not be admitted. That is not

Digitized by Google

the principle of the institution, as it was not established for that purpose. We have not the means, and we have not the plant, for admitting as yet the incurable cases. I hope we shall be in a position to take that class of cases at some later time. It is an institution for the relief of the curable case and for the education of that kind of cases. When a patient goes to his home as a cured or arrested case, he spreads the information as to the care and treatment that he has received while there, and in this way he is a benefit to his community by educating them to care for themselves and preventing the spread of the disease to others.

CLOSED BY SAMUEL R. UPHAM, M. D., CLAREMONT.

After listening to the very instructive and interesting paper upon the diagnosis and treatment of tuberculosis, by Dr. Bartlett, I will devote a few minutes to the cost to humanity in life, and the loss to the farmer and ranchman in money, from tuberculosis, that could be entirely eradicated by adequate laws throughout the country.

ANIMAL TUBERCULOSIS IN ITS RELATION TO MAN.

The most prevalent and the most important disease of cows is also the most common and fatal disease of mankind, as man and cows are the most commonly affected. They are also the source of emanation of the tubercle bacilli to a large degree.

During 1908, according to the most reliable statistics obtainable, 160,000 lives were sacrificed to tuberculosis, and this enormous number does not include deaths hastened by tuberculosis but chargeable to other diseases. All of these deaths emanated from a germ that had its origin in the bodies of man or of animals that were suffering from tuberculosis. At this time when the whole country is trying to solve the problem of the increased cost of living, the government has been collecting data and statistics regard-

Digitized by Google

ing the loss to the farmer and ranchman from tuberculosis in his cattle and swine.

This is now the most serious problem confronting the live-stock industry, as the disease is increasing with alarming rapidity in states where no strict or adequate measures have been taken to combat it. The crusade now interesting our country as to pure and more wholesome food supply has reached our meat and dairy products in its relation to the infecting of man with the tubercle bacilli. Although so eminent an authority as Dr. Koch will not admit that tuberculosis in man is caused from animals, there seem to be innumerable cases and facts presented by other observers which tend to show that animals are the cause of the disease in an unknown, but surely a large, number of cases.

From the statistics of meat inspection and the records of the tuberculin tests it is estimated that more than one per cent. of the beef cattle, ten per cent. of dairy cattle and two per cent. of the hogs of the United States are affected with tuberculosis.

The financial loss that is chargeable to this disease among farm animals amounts to $23,000,000 a year. Both in the interests of the public health and financial aid to the farmer and stock-man, it is high time that more systematic work should be done to suppress the disease among our domestic animals. The testing of infected butter shows that the tubercle bacilli retain their vitality and virulence under the common market conditions for at least five months. A large number of samples of market milk from various dairies supplying the city of Washington were tested in a year, and a little over one in every twenty was found infected with tubercle bacilli. It was found that dairies distributing infected milk do so intermittently and not continuously, which makes a single testing of the milk worthless. One dairy whose milk was examined daily for ten days was found infected on the sec-

Digitized by Google

ond, third and eighth days, the other seven days the milk was apparently perfectly wholesome.

Cows supplying milk to some of our cities have reacted to the tuberculin injections and then the diagnosis was confirmed by autopsies upon these same animals.

Summing up the cost to the people of our country from tuberculous cattle, we first have the unknown but doubtless enormous numbers that become infected during the milk feeding period of life, which is in infancy. Then in dollars and cents the United States pays tribute of $23,000,000 annually. All of this terrible scourge it is possible to eradicate from animals as soon as all the states will pass and enforce rigid enough laws as to the detection of animal tuberculosis and the destruction of the infected animals.

Digitized by Google

PREVENTIVE MEDICINE AND ITS RELATION TO FOREIGN IMMIGRATION.

(Pray Prize Essay.)

GEORGE S. FOSTER, M. D., MANCHESTER, N. H.

Preventive medicine is an inexhaustible subject if looked upon from a broad point of view. This modern phase of medicine can be applied to all classes regardless of their social standing.

Three hundred years ago when our country was sparsely populated, prophylaxis was not needed to any high degree. At that time the forest was the king, surrounding the untroubled lakes and rivers, bounding the unpathed prairie, and shading untraveled oceans. At the end of the first century, as history informs us, governmental questions were discussed and laws formulated. At the beginning of the nineteenth, conquest was foremost in the minds of the settlers of the thirteen colonies.

Men and women of those days were healthful and sturdy, always ready for the unexpected. The "Father of Our Country" was one of those men, sturdy of mind and a criterion in physique. The men of his time who gathered about him were made of the same metal and were the result of the same strongly constitutioned ancestry. Then disease was very limited in its onslaught. Excluding the deaths due to personal violence and accidents, the mortality at this time was comparatively low. However, as the country became more thickly populated, the gifts of Dame Nature were slowly crushed and sadly tampered with. Town sites became villages and in turn the villages rose to cities. By the time the Civil War period was reached, the noble forest had been intruded in order to

Digitized by Google

make room for the farmer. Rivers and lakes had been polluted by the sewerage, and waste matter was pouring into them from every household.

The financial condition of our ancestors did not allow of any unlimited help along the lines of hygiene, in this respect. Thus we can see why it was that the people found themselves beset by such terrible diseases as pneumonia, typhoid fever, cholera, dysentery, malaria and a score of other ailments. Naturally the mortality of every community was increased a hundred-fold.

Following the personal strife between the North and South, our United States went through a period of regeneration which resulted in an effort toward the betterment of all. At this time sewerage was poorly systematized and every stream of any size was polluted. However, from 1866 up to the present time every means for improvement has been brought forward.

Gradually the medical profession has come forward, and as a result it finds itself, to-day, not only well equipped for emergencies but always improving upon conditions. We find also each member of the profession educating his patients along the paths of preventive medicine.

Not a single hour of the day passes in which every physician or surgeon does not expound his beliefs of preventive medicine to those who call upon him for aid. As members of this noble profession, we find it our duty to ever try to keep the people from becoming sick.

The time of hazardous use of drugs has passed and we must preach health. This statement is proved by the well managed boards of health, both state and municipal, free dispensaries, open-door hospitals, open meetings to the public addressed by the profession, periodicals which give up space to rules of health, societies for the prevention of tuberculosis, and even the life insurance companies who scatter preventive medical literature far and wide.

District nursing associations are to be found in every

Digitized by Google

city and town and helping hand societies are on the increase. We are pleased to know that through innumerable organizations of this character the welfare of all, so far as health in the general sense is concerned, is being cared for. How much satisfaction it gives to every physician who enters a home where he can talk education to know that his warnings are well heeded and his teachings appreciated.

The schools of our country are raising their standards both in their requirements for entrance and for graduation. With this uplift we cannot but look for better and more encouraging things.

After all, the people who are born in the United States learn to know the right and wrong in regard to health. It is the present day immigrant we must now begin to reach. If we look ahead a decade or so we must see that those who enter our country, to-day, to remain here are the ones who most need the gospel of preventive medicine. Conceding that this is true, how shall we begin our missionary work? May I suggest that the way to begin is to teach these immigrants how to properly pick out a place of abode? The average immigrant enters this country under the ban of limited financial means. If this was not true he would have stayed at home. I can see no other way to reach this subject than to have gatherings where, under the direction of physicians, the newcomers are told why they should live in a building which is well ventilated and not overcrowded.

In every city and town of New England there are certain localities where the immigrants gather: the Polanders go to one section, while the Greeks overflow another, and so on. This would be a feasible plan were it not for the fact that the bounds of these localities are limited, while the influx of human beings continues. As a result we find every tenement filled beyond its capacity. The supply does not meet the demand.

Digitized by Google

If, by means of meetings, these incoming people could be told that they must not live in crowded apartments, one step toward the betterment of their condition could be made. In co-operation with this idea there should be city ordinances strictly regulating the erection of new buildings and limiting the number allowed to occupy any one suite. Any appropriation made to gain this end would save every community many hundreds of dollars in years to come.

No. 1.

The accompanying photograph No. 1 shows a building in which there are sixty rooms. Beneath the roof of this building three hundred Polanders dwell. Thus it is shown that five, on the average, live in every room. If one-half the number living in this block were removed, the number remaining would be none too small. At the time of writing this paper I visited this building for the sole purpose of ascertaining how well the rooms were ventilated. To my disgust and regret I found nearly all of the windows tightly closed and the air in the rooms not only foul but deeply impregnated with odors and stenches

Digitized by Google

of every variety. That such a condition of affairs would be allowed to exist by any board of health is beyond belief. However, I realize that most health boards are doing all they can. The main trouble is that the number of working members is not large enough nor the financial resources sufficient. A glimpse at the windows of the building will bear me out in my statements.

Again, the buildings are so crowded together that the rooms are very poorly lighted, especially by the direct rays of the sun. When we recognize that direct sunlight is our cheapest germicide, we must admit that disease of every sort lurks within the walls of any poorly lighted dwelling. All city ordinances should govern this condition and provide for sufficient space between the separate flats or private houses. Police supervisors and health board inspectors should have full power to see that these things do not exist. If every city of any size employed a physician to use all of his time in making regular inspections of these buildings and if such a person could have power to enforce the laws of health, much money would be saved each year. Instead of the great amount of money needlessly expended by every city and state in the country, we would have one person who, if the work was well done, would at least educate the newcomers how to begin rightly.

That those who make up the present day immigration can learn to do these things is illustrated, in part, by photographs Nos. 2, 3 and 4. Photograph No. 2 shows a wooden dwelling of the old style, the two and one-half story type. This building is situated upon a narrow street, yet the pavement is fairly clean and the exterior well-lighted. In one corner of the building, on the lower floor, is located a grocery store which is managed by a Polander and his wife. In the rear of this store is a meat department, with the cutting blocks kept well scraped and cleaned. All waste material is properly disposed of and the refrigerator is neat. The front part of the store contains the ordinary

Digitized by Google

No. 2.

food products, canned goods and package food. All materials are neatly arranged and the floors are kept clean. By closely scrutinizing this photograph the perfect arrangement of the goods on the shelves can be seen through the window.

No. 3.

Digitized by Google

No. 4.

The proprietor and his family live in the tenement adjoining the store. Photographs Nos. 3 and 4 show the interior of his home. A glimpse at these pictures will show how well lighted the apartment is. Though the tenement is old it can be seen that the floors are clean and the furniture neatly arranged. Nothing is thrown about carelessly.

While the photographer was taking these pictures the writer noted that the stove was well polished, the lamp chimneys clean, the oilcloth covering the table washed, and, in fact, there was a general air of tidiness displayed in every corner.

This proprietor and his family have been residents of this country for only a few years, yet they have learned the lesson fairly well and simply exemplify the willingness of these immigrants to learn the rules of hygienic education.

On the other hand photograph No. 5 shows a row of tenement houses situated along a narrow and poorly laid-out street. The pavement is covered with dirt and waste

Digitized by Google

No. 5.

material which at once shows the reader that the hygienic conditions here are very poor. There is no doubt in the mind of the writer but that the greater amount of this debris in the street was originally thrown out of the windows. Here is a very important point, proving what has been stated regarding hygienic education in the schools and supervision of municipal and state health boards.

If proper instructions were given the occupants of these houses they would deposit their culinary department waste in a suitable receptacle. The frequent visits of a health board inspector to these localities would be an incentive for the neighbors to take heed.

Another thing noted in photograph No. 5 is that the clothes after having been improperly washed, are hung on lines on the roof of the building. Here every bit of dust that rises from the street below has a good chance to lodge on the garments. By this medium alone, disease is disseminated in every direction.

By a personal inspection of the interior of these dwellings the writer found most unhealthful conditions prevailing.

Digitized by Google

Many of the tenements are made up of but two or three rooms. Those occupying this small amount of room number from five to twelve or more persons in each tenement. This number includes babies in the cradle, older children and adults. Of this number of rooms, one would be practically without light, the other having not more than two windows. The sashes were found tightly closed, the window panes filthy, the floors piled with dirt and the furniture, of a very poor quality, scattered here and there.

Food-stuffs were placed on a dirty table or about the sink, and here flies were liberally satisfying their appetites. In fact, in one tenement I visited there was an infant in the cradle, covered with bedclothes seemingly unfit for even a domestic animal to use as a resting spot. This child was evidently trying to sleep under the tantalizing influence of perhaps twenty house flies perched upon different points of his facial anatomy. The child would toss and turn in his semi-slumbering state and, with the aid of the reflex movements of his arm, was endeavoring to free himself from the torment. Nasal secretions were pouring out upon the upper lip, running down over the cheeks and becoming exsiccated. I personally witnessed flies light in the midst of this filth and then fly away to finish a meal on a morsel of food which had been prepared for the family. Could any picture be more deplorable? Filth existing upon filth of the worst sort.

And why is this all so? I may say that this question can be answered in two ways: First, lack of interest by those qualified to educate; second, lack of funds to inaugurate proper health board inspection. We cannot compel people to do some things, yet we can fosteringly show them the right and wrong. We can, however, insist upon protection for ourselves.

How many immigrants fully realize the amount of filth there is on the leg of a fly? Every perfect fly has six legs. Not only this but the insect's entire body is, from sunrise to sunset, bathing in the unclean, the medium of disease.

Digitized by Google

The common house fly of this country is a thing that should be exterminated just as much as the mosquito. A war has been going on against the mosquito for some time, while the house fly is allowed to propagate and thrive.

If it was not for the commercial houses manufacturing fly paper, screens, etc., what little protection we now get, would be lost. This is done purely from a mercenary point of view yet we may be thankful for it. The world is calling for more of the people who are willing, and at the same time can afford, to go out among the new invaders of our free land and teach them the good and right things in this world.

The majority of those making up modern day immigration come into this country unaware of the health attaining facilities to be had at a small expense. For instance, take our modern wet wash laundry. Here we have a source whereby, for minimum compensation, the wearing apparel can be properly washed and cleansed. If such a resource was explained to the newcomers we would see less badly-soiled underclothing, shirts, collars and bedclothing in their houses.

Think of the mud in the streets being absorbed by the lower edges of skirts and trousers and later carried into the very mouths and throats of those occupying the tenements of these immigrants. To teach these people the proper use of the door-mat would certainly be a step in the right direction.

Photograph No. 6 shows a hallway in the building illustrated by photograph No. 1. Each of the ten doors in this hallway represents the entrance to separate tenements. Each tenement, as before stated, is made up of from one to three rooms and occupied by from three to ten persons. Imagine the amount of dirt and filth left on the floor in the hall from this number of people going in and out many times daily. With all this to confront us we will not find even one door-mat in this long corridor. How ridiculous

Digitized by Google

No. 6.

the situation, yet it exists right in the heart of a fair-sized city! The amount of dust and dirt on the floor of the hallway in question can be clearly seen in the illustration. Perhaps the occupants might excuse themselves upon the

Digitized by Google

grounds of ignorance, yet we should be ashamed of such a condition from the viewpoint of honorable citizens living in a period of healthful uplift. Door-mats are most conspicuous by their absence, yet full milk bottles and refrigerators are very noticeable by their numbers.

This photograph was taken about 1.30 P. M., and, presumably, these milk jars had been placed on the floor many hours previous. An examination showed every bottle to be covered with dust and dirt while the doors of these food boxes were loose fitting and perforated. To have these food receptacles placed along such a general thoroughfare is, to say the least, very bad. The filth of the tenement interior and the outer world meet in just such places for the sole purpose of contaminating everything it comes in contact with.

All foodstuffs make improved culture media for bacterial growth.

The organisms of typhoid fever, tuberculosis, sepsis, *et cetera,* simply enjoy just such an environment, fully as much as we would the equable climate of Southern California. You can figure out how the unfortunate children in these houses are being polluted with the ever ready-mixed growths of these harmful materials. How can it be prevented except by a systematic health board supervision in the hands of willing workers and under the direction of a competent person or persons?

When we realize that sixty per cent. of infant mortality is caused by impure milk, we must answer the call of these little ones. It is agonizing to witness the suffering of the offspring from the immigrants. May I suggest that it is the lack of proper schooling of the adults, and not by any means lethargy, or dullness of desire to learn to do right? We must awaken ourselves and meet these situations. By so doing the well-meaning newcomers will advance in healthful desires and pride. Just as widely taught religious training keeps most within the scope of law, so will

Digitized by Google

proper education along the paths of hygiene and health pave the way for a "Spotless Town."

The familiar adage, "Clean out, clean up, and keep clean," should be the sign-board at every corner, in each precinct of all localities. Of what use would our laws be without faith? It is not law that makes morals, it is faith. In the same way we might have the most stringent rules by means of which health boards could carry out their duties and, yet, without the proper education the public cannot be expected to have faith in these rules, to say nothing of a right understanding of them.

That the present health board rules are not appreciated by the foreign immigrant is well shown in the every-day life of any physician. This lack of appreciation springs from the fact that no systematic teaching is at present within the reach of many of our well meaning friends, foreign immigrants. This last statement is well put because it is the belief of the writer that the ambitions of these people, when rightly guided, are toward a profitable goal.

No. 7.

Digitized by Google

Photograph No. 7 plainly shows the average condition of one of the tenements rented by this class of people. By comparing this picture with Nos. 3 and 4, the contrast is well drawn out. The tenement shown in photograph No. 7 consists of two rooms, each with a northern light. The kitchen and living-room, all in one, occupies a greater part of the photograph, while to the extreme left can be seen, through the doorway, the sleeping apartment. In the kitchen the furnishings will be seen to be carelessly placed and untidy. The table cover is filthy and wrinkled and, while it served the purpose, its every inch was a good culture for the growth of disease-producing organisms. The chairs were fairly coated with grease and foodstuffs. No person who cared to keep his clothing clean would desire to rest in these chairs. In the background of this picture is seen the baby's cradle, untidy and of poor toilet. This same cradle is placed beneath one of the windows and near the door where drafts would continually pour in on the improperly covered infant. And what would be the results except bronchitis, pneumonia and the like? In the extreme left-hand corner is the sink, which was filled with unwashed dishes, the sink itself being coated with grease and waste material. Flies hovered about this place as they would about honey or sugar. The stove was poorly polished and piled high with every sort of culinary ware. This ware was examined and found in a very unclean state.

The dust that had escaped lodgment upon other furnishings of this room has collected in small mounds on the floor. In this dust the baby seen in the picture roamed about at will with his clothing and face anything but clean. The mother herself was barefooted and, from external appearances, had not taken a bath for many moons. In fact, a mere glimpse at this photograph will show the untidiness of it all. To climax the situation a cat was allowed to roll in the filth and to be fondled by the babe. Who could imagine a worse situation from the sanitary and

Digitized by Google

health point of view? Again I must state, it is lack of proper knowledge that permits these immigrants to tolerate these conditions and not the absence of desire, if the right way was taught.

No. 8.

The writer, by chance, opened the door seen in the extreme right-hand corner of photograph No. 7, and the view seen in photograph No. 8 met his gaze. What a conglomeration there is in this picture! The back windows of many a tenement look out upon a confined space in which there are dove-cotes, outhouses, wood-sheds, clothes lines, *et cetera.* The ground within this square was piled high with debris and filth in every corner and nook. The odors that arose from it could never be endured by the ordinary individual, and yet this was right in the heart of a commercially prosperous city.

If human beings could be spared, it would seem merciful to have such a section cleaned out by a conflagration. Think of the rats and mice thriving within the bounds of such a locality and spreading filth and disease in every direction. The liquor traffic is curtailed in many states by

Digitized by Google

law. The banking and insurance supervision is well moulded. In fact any branch of life that meets finance direct is properly supervised by commissions. Along such lines the people are well provided for and why should they be so neglected when it comes to sanitation, hygiene and health? Perhaps the answer might be that no money is directly exposed for destruction.

Libraries are to be found in any locality, many of them given by the so-called philanthropic element. Monuments are erected in memory of great men. Lecture courses are given gratuitously, while the education of health is badly neglected and teaching along preventive medical lines for these people remains at a comparative standstill, because the financial endowment needed is not given. The philanthropic element should be interested and thus the needy immigrant, who is willing to learn, may profit. None of the accompanying photographs show any facilities for proper bathing, one of the essentials if we would have health. Let us become interested and try to improve these conditions. It is for the medical profession to start this work as they are the ones who understand its needs best. Proper legislation seems to be the first avenue of approach, and with sufficient backing from well pointed laws and a carefully selected commission a great deal of help could be given our foreign friends along educational and practical lines.

In bringing this paper to a close I desire to bring forward two subjects which are of the utmost importance to the present day immigrant as well as the community at large. I refer to, first, the patent medicine habit, and secondly, the genitourinary diseases which are apt to be acquired by great numbers of the unmarried males. Taking these subjects up in their order I will endeavor to bring out a few points regarding the nostrum drug remedies.

For decades past patent medicines have been upon the market. The immigrants of to-day, more than any other

Digitized by Google

class of people, are open to the onslaught of this form of drugging. This last statement is backed up by not a few arguments in the affirmative yet I will take up but two of them. The average foreigner comes to this country with the idea that he can earn relatively high wages and save money. This idea is always so strongly stamped upon his mind that perhaps, at times, his desire to lay by his earnings, overrules his undeveloped judgment. Thus, rather than to seek the services of a competent physician, he goes to the nearest drug store and purchases some cure-all for every disease to which mankind is heir. By so doing he thinks he has saved an office fee and will soon be well again. For this habit we, as physicians, are in part to blame to a greater or less degree. The average immigrant has to reside in the United States at least one year before he can gather enough English to express himself at all.

During this period he may fall prey to a number of ills and require the closest attention of a physician. At these times he seeks some friend who acts as interpreter and explains his physical condition, as best he can, to the physician. Any physician who is prosperous must necessarily be busy, and many of us fail to take the proper time or use the care to make an accurate diagnosis of this class of cases, merely because it requires additional energy.

Therefore, as a result, we are apt to make a hurried examination and write out a gunshot prescription, both of which practices are detrimental to our welfare. The patient does not get relief and after a few visits, perhaps but one, he seeks the services of one of our brothers, going through the same routine and getting the same results. Discouragement comes to him and by natural instincts he purchases the widely advertised cure-all.

Would it not be far better to spend the extra time required for these cases? Be patient and persevering with them, thus, perhaps, earning more than the allowed compensation, yet giving satisfaction and thereby showing

Digitized by Google

this class of persons that we are ready and willing to do our best for them. Also, during the educative course previously mentioned, the shortcomings of advertised nostrums could be explained and their faking ways shown up. This is by no means a matter to be dealt with lightly, and the sooner that we of the medical profession realize this, the better for ourselves and the laity at large. Age should ripen, rather than decay, the ambitions of our members. The dull walls of our offices should be offset by the sunlight and fresh air of the outside world. The cares of duty should be smoothed by social interchange. Thus can we all learn to help the needy without tiring in our efforts.

The last thoughts of this paper are gathered around the genitourinary diseases so prevalent among the foreign immigrants. From the very beginning of creation itself the disease of this part of our anatomy has been the curse of many nations. Every physician can bring to mind many cases of gonorrhea or syphilis among the immigrants of his community. The average foreigner comes to this country alone, leaving behind him a family. Here he finds work and slowly saves up enough money to bring over his family.

The time required to accumulate this amount of money varies from one to three years. During this time the immigrant mixes with his countrymen, who are more or less familiar with the ways of the community. He naturally seeks the advice of those who have been in this country longer than himself. He may write home frequently, but as time goes on his desires along certain lines become more and more impressed upon his daily life.

The wayward female sex, so numerous in all New England, soon find their way to this lonely person. He lowers himself and, covered with the ignorance of the consequences, awakes some fair morning to find himself a victim of the social evil of life. The harm has been done and

Digitized by Google

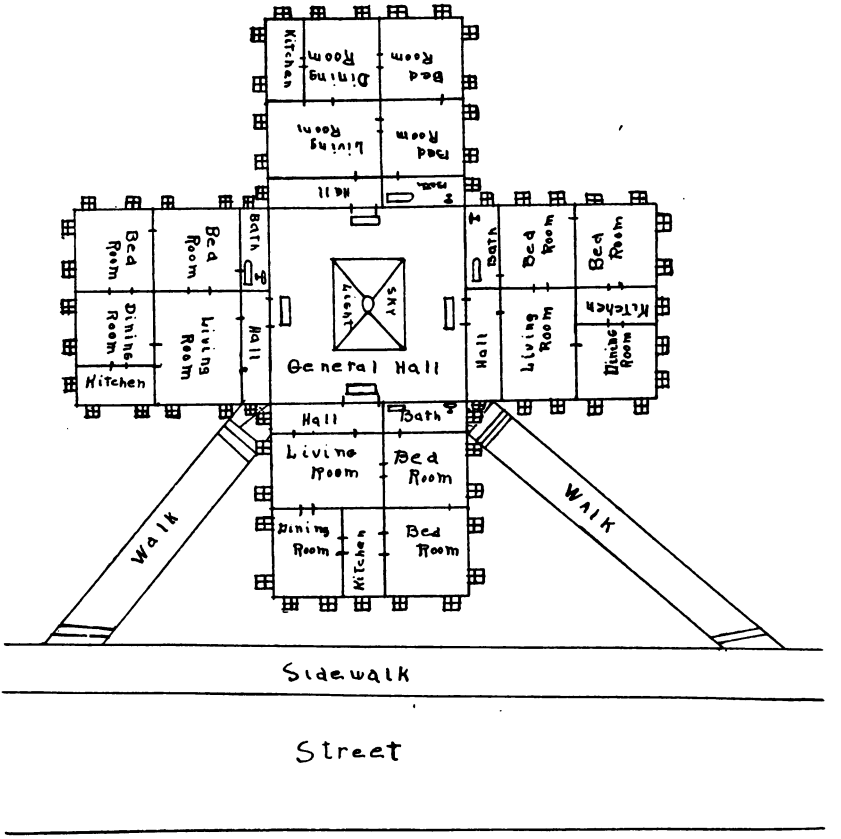
he seeks the services of a physician. No class of people are so unsatisfactory to treat along these lines. They get dissatisfied and are impatient. Their uneasiness leads them to wander, and in going from one physician's office to another they are in a small measure helped while many times the discouragement is great. Thus it goes on. Why should we not try and educate this class of people to the dangers lurking about them all the time.

I am sure we would be doing much good and no harm. A helping hand means much to these poor, ignorant people. I do not care to shoulder the responsibility of placing all the members of our profession in the missionary realms. I would not want to have our professional brethren do much work without compensation. Yet, above all this, I do believe that a systematic form of education, given to the present day foreign immigrant, along preventive medical lines, would allow us to reap the fruits of our efforts in a self-conscious satisfaction that we are building up a vigorous, clean and sturdy life among all classes alike.

The following diagram shows, roughly, the writer's idea of a modern tenement dwelling fulfilling hygienic standards. The apartments are to be heated by steam. Each room is well lighted and ventilated. Two different locations are shown for the kitchen. As many stories as desired could be built. Many finer details are purposely omitted. It is the writer's intention to merely bring forward a simple idea.

Digitized by Google

[Scale, 30 feet to the inch.]



THE USE OF FAT-FREE MILK IN INFANT FEEDING.

H. H. AMSDEN, M. D., CONCORD, N. H.

There is, perhaps, no subject under consideration by medical men to-day, upon which a greater difference of opinion exists than the artificial feeding of infants, partly because by many physicians feeding cases are regarded as of little importance, to be dismissed with recommendation of some favorite baby food and left to the care of nurse and mother, but more especially because there is no scientific, generally adaptable method of infant feeding, nor is there likely to be until the chemistry of digestion has been placed upon a more scientific basis. The fact that so many infants must be artificially fed, nowadays, because of physical limitations of the mothers in the middle and upper classes at least, renders this a problem of great and increasing importance.

Milk is the universal food for the human infant, and in case it is impossible to obtain human milk, in this country at least, cow's milk is the universal substitute. All methods of infant feeding, then, have as their object the modification or adaptation of cow's milk to suit the needs of the individual child. In this country the so-called percentage method is most widely adopted, which was formulated and introduced by American pediatrists, notably, Rotch and Holt. A brief statement of the principles of this method and the views of its advocates concerning the chemistry of milk digestion will serve as an introduction to the consideration of the subject of this paper.

An average specimen of cow's milk contains: fat, 4 per cent.; sugar, 4.50 per cent.; proteid, 3.50 per cent.; salts,

Digitized by Google

.75 per cent.; water, 87.25 per cent. An average specimen of human milk contains fat, 4 per cent.; sugar, 7 per cent.; proteid, 1.50 per cent.; salts, .20 per cent.; water, 87.30 per cent. According to the generally accepted views, of these various ingredients the water, salts and sugar are identical as to chemical composition and digestibility in both kinds of milk and give rise to no digestive disturbance; the fat is practically the same and is easily digested unless in excess, which can be overcome by simple reduction in amount; but the proteids differ radically, largely on account of the great preponderance of casein over lactalbumin in cow's milk, and if any given specimen of milk of proper percentage composition proves indigestible, the trouble must be due to the proteids. The percentage method is based on this assumption as to the indigestibility of the proteids, and uses as a basis top milk containing a high per cent. of fats and low relative per cent. of proteids, from which by suitable dilution, addition of sugar, skim-milk, etc., a milk can be prepared which reproduces the percentage composition of any given specimen of human milk. If this proves unsuited to the infant, an effort is made to further adapt it by changes in the percentages, and this proving unsuccessful, the proteids are to be further modified by predigestion, the addition of cereal gruels, whey or the so-called split proteids, etc. This method was really the first attempt to reduce infant feeding to a scientific basis.

Now there are certain objections to this method. In the first place it is complicated and no two authorities give the same formulæ for calculating the percentages. Unless a careful analysis of the modified milk is made, the physician is by no means certain that he is getting the exact fractional percentages for which the method calls.

Then the amount to be given in any individual case is calculated arbitrarily according to the age of the child, rather than its weight or nutritional needs. The ordinary

Digitized by Google

method of determining a proper dietary for an individual or group of individuals seeks first to ascertain the caloric value of the food, then to establish a proper ratio between this factor and the nutritional needs of the consumer, based on the weight, age, occupation, climate, etc. As all infants may fairly be classed together as to bodily activity, heat loss, etc., it follows that given two infants of the same age, in similar surroundings, we are justified in assuming that the one child weighing ten pounds would require more nourishment than the other weighing only five or six pounds.

Another objection to this method lies in the assumption that the modification of milk so as to secure exact percentages makes it *per se* more digestible than simple empirical dilution or, in other words, that a fractional juggling of percentages may adapt a given specimen of milk to a given infant without further change; for instance, it is claimed that a child that cannot digest one per cent. of proteids may be able to digest .75 per cent. or perchance 1.25 per-cent. A trial of this method has convinced the writer that in case a modified milk disagrees with an infant it is generally a waste of time to attempt to adapt it to the case by a mere rearrangement of the per cent. of fat, sugar and proteid, without adopting more radical measures.

The principal objection to the percentage method is that it assumes that the indigestibility of the proteid is the cause of difficulty in milk modification, and that all efforts must be directed toward overcoming this one feature. This, in turn, is founded on certain deductions from laboratory experiments on milk, and on analyses of curds found in infants' stools. If two test tubes are partly filled, one with skim-milk containing one per cent. or less of fat, and the other with gravity cream, approximately sixteen per cent. fat, rennet added to each, and the test tubes allowed to stand, the skim-milk will form a tough, firm curd, while the cream will form a softer, more friable curd.

Digitized by Google

If, however, the test tubes are gently rotated, thus imitating the peristaltic motion of the stomach, the curd will be soft, flocculent and easily disintegrated, that from skim-milk being softer and finer than that from cream. It would seem that this test reproduces more nearly the conditions of gastric digestion than the former, and, if this be so, the test affords no good and sufficient reason for assuming that the casein of cow's milk is the sole cause of the curds found in infants' stools. After all, these tests prove very little as to the digestion of milk in the gastro-intestinal tract, but show that the data upon which the classic assumption as to indigestibility of proteids is based are erroneous.

As to the composition of curds found in infants' stools, Talbot[1], in a series of analyses of large curds, found them to be composed mostly of casein, and considers that the soaps, fatty acids, etc., found therein, which vary in amount according to the percentage of fat in the milk, are merely incidental, being mechanically entangled in the curd. Clinical experience, however, tends to prove that the fat rather than the casein is primarily responsible for curd formation. A well recognized symptom of too high fat per cent. is the "spitting" of sour curds some time after nursing, this occurring in both breast-fed and bottle-fed infants. It will often be found that in case a mother's milk disagrees, the percentage of fat is too high, and dieting to correct this condition will render the milk digestible. Jacobi[2] cites some cases of this sort, in which seven per cent. of fat was found in breast milk. The same thing is true of some breeds of cows, Jerseys, particularly, whose milk is frequently so rich in fat as to render it impossible for them to suckle their own calves.

It is impossible to obtain a proteid-free cream without destroying its identity as cream, the per cent. of proteid

(1) Boston Medical and Surgical Journal, June 11, 1908, p. 905.
(2) Journal A. M. A., October 10, 1908, p. 1216.

Digitized by Google

being about the same in skim-milk and the heaviest cream, hence we have no data as to the behavior of such in the gastrointestinal tract, but it is interesting to note that olive oil, which is almost pure fat, will in some cases form soft concretions in the stools, which on analysis are found to be composed of soaps, fatty acids, etc., similar to the curds in infants' stools, and it is probable that their formation is due to an excess of fat in the intestine.

The best proof, however, that the proteids of cow's milk are not indigestible is the clinical test made by feeding fat-free milk to infants. About three years ago there appeared in the Journal of the American Medical Association some articles by Walls[3] and Brennerman[4] based on data from the writings of Heubner, Czerny and Keller, controverting the views of the advocates of the percentage method, and expressing some revolutionary ideas on the subject of infant feeding. These articles state, in substance, that infants fed according to the percentage method are, almost without exception, overfed; that the symptoms of overfeeding are due to an acidosis from excess of fats; that the fats, not the proteids, are the cause of indigestion in milk feeding; and that the amount of milk given should be calculated not on a percentage basis, but according to the ratio between the weight of the infant and the caloric value of the food. A series of cases is cited in support of the above statements, in which children suffering from various forms of gastrointestinal disturbances were fed on fat-free milk, either diluted or undiluted, and with uniformly good results, the stools resulting from this method of feeding being smooth, soft, free from curds and mucus and without offensive odor. The typical skim-milk stool is described as of the color and consistency of vaseline. The symptoms of indigestion and acidosis in infants fed on milk mixtures containing too much fat and

(3) Journal A. M. A., April 27, 1907, p. 1389.

(4) Journal A. M. A., April 20, 1907, p. 1338.
Boston Medical and Surgical Journal, March 19, 1908, p. 379.

Digitized by Google

other modifications of milk, disappeared sometimes within twenty-four hours after beginning fat-free milk feeding. Clinical experience would seem to indicate that the fat, rather than the casein, is generally responsible for curd formation and indigestibility of milk.

A practical question arises as to the cause of the relative indigestibility of different kinds of milk. We know that milk is an emulsion, containing fat in globules of various sizes, each globule supposed to be enveloped in a covering of proteid (lactalbumin). The digestibility of an emulsion is in inverse ratio to the size of its fat globules: the smaller the globule, the more easily digested. Gilbert[5], in some interesting experiments, showed that pigs fed on skim-milk thrive better than those fed on milk rich in cream, the latter losing weight and suffering from indigestion; that the milk having the smallest fat globules gave least trouble in digestion and assimilation; that the smaller fat globules were more readily absorbed by the intestinal villi; and finally, that the milk from Jersey cows, having the largest percentage of cream and largest fat globules, was less easily digested than the poorer milks, *i. e.*, from Holstein cows.

The possibility of modifying the fat so as to increase its digestibility is a matter of interest in this connection, and the influence exerted on the fat by the various methods of milk modification offers a field for clinical research which may yield data of value. It would seem that any attempt at fat modification must be by making a finer emulsion, but any mechanical agitation of milk causes a coalescence of fat globules and the emulsion is rendered less perfect thereby, as can be easily demonstrated by microscopial examination of specimens of cream before and after whipping. Yet it is a fact that beating or whipping a milk mixture for a few minutes seems to increase its digestibility, possibly by destroying the proteid envelope of the

(5) Medical Record, October 17, 1906.

Digitized by Google

fat globules, so that they are thus rendered more accessible to the action of the pancreatic secretion and bile; or, by so acting on the casein as to delay coagulation and render the curd finer and more flocculent. Our knowledge of the ultimate processes of digestion is so incomplete that we can merely speculate as to what actually goes on in the intestine; it would seem that some reaction takes place between the fat and the casein which results in curd formation and consequent indigestibility.

Turning now to the practical application of this subject, the method of calculating the amount of milk to be given in any case is based on the energy quotient, to be determined by the relation of the caloric value of the milk to the weight of the infant. It is found by experiment that an ounce of gravity cream, averaging 16 per cent. fat, has a caloric value of 54; an ounce of whole milk, 21; of skim-milk, 10; of milk sugar, 120; and of cereal gruel, 3. By multiplying the number of ounces of the different ingredients by their caloric values, adding the results, dividing the total by the weight in pounds of the infant, and multiplying the result by 2.2, the energy quotient is obtained. This should be about one hundred for the early part of infancy, gradually reducing to about eighty at the close of the first year. Heubner states that the minimum amount of whole milk upon which an infant can be kept in nitrogenous equilibrium is one ounce per pound of body weight, the average amount 1.25 oz., the maximum 1.50 oz., and if this latter figure is exceeded, symptoms of indigestion are almost sure to follow.

My personal experience with this method of feeding is based on ten cases seen during the past two years. To one accustomed to the use of the percentage method, it takes considerable courage to feed undiluted skim-milk to a sick baby, but I can only say that the results obtained have, in each case, justified the claims made by its advocates, that a skim-milk diet will result in the production of smooth

Digitized by Google

salve-like stools, free from mucus and curds, inoffensive in odor, and unaccompanied by colic or constipation.

I wish to cite briefly the history of two of these cases:

Case I.—E. A., of healthy parentage, bottle fed from birth, given at first a modified milk, from top milk, lime water, milk sugar and water, low in fats and proteids. Child did not thrive on this, curds were always present in the stools, and any attempt at increasing the strength of the milk by addition of more top milk caused colic, curds, mucus, "spitting," etc., with loss in weight and nutritional disturbances. Various percentage modifications were tried, also sodium citrate, gruels, Mellin's food, malted milk, whey, gelatine, egg albumen, broths, peptogenic milk powder, etc., with the same unsatisfactory results. Finally a mixture of skim-milk and water, equal parts, with milk sugar and lime water was given, and in twenty-four hours the stools became normal. Small amounts of cream were gradually added until it became possible to use whole milk as a base, temporary derangements of digestion due to efforts at increasing the fat always being overcome by a return to skim-milk.

Case II.—M. M., apparently healthy at birth, breast fed for two weeks and then weaned on account of mastitis. A whole milk mixture was given with good results for two months, when symptoms of hereditary syphilis developed, coincident with which began very serious digestive and nutritional disturbances, and former whole milk mixture disagreed most markedly. Resort was had to skim-milk here, which gave good results, digestive disturbances disappeared, and child made a good recovery.

It is obvious that skim-milk alone is insufficient as a food because of its low caloric value, and it is necessary to add fat in some form, preferably cream. In cases where this disagrees a temporary resort may be had to high percentages of sugar, but it is generally agreed that some fat is needed to avoid grave nutritional disturbances. By be-

Digitized by Google

ginning with fat-free milk and gradually adding small amounts of cream, it is possible to educate the infant's digestive apparatus, so to speak, until it is able to take a mixture containing a due proportion of fat.

My personal experience has led me to believe that in many feeding cases, beginning with a milk too rich in fat causes digestive disturbances hard to overcome, and that in the great majority of cases we will succeed best by using a clean, whole milk with low per cent. of fat, and by seeking to establish a proper ratio between the caloric value of the food and the weight of the child. It is useless to expect to gain satisfactory results unless we have a clean milk and know the per cent. of fat therein. In Concord we are fortunate in being able to obtain these essentials, largely through our city milk ordinance and the efficient work of our milk inspector. There is a great variation in the composition of milk given by different breeds of cows, and, as has been stated, other things being equal, that in which the ratio of fat to proteid is least, in other words, a relatively poor milk is best suited for infant feeding. In this part of the country the Holstein cow gives the best milk for these purposes.

In order that the physician may intelligently prescribe a milk mixture it is necessary to know the fat percentage, and it may also be desirable to know the size of the fat globules through microscopic examination.

It is not expected that this method of feeding is the last word on the subject, or is necessarily the best and universally applicable one. The demonstration of the digestibility of the proteids is a most valuable addition to our knowledge of the chemistry of milk digestion, and any method which does away with complicated and arbitrary formulæ and substitutes a simple whole milk mixture for the artificial compounds proposed by some pediatrists today is indeed welcome.

Digitized by Google

DISCUSSION.

HARRY W. N. BENNETT, M. D., MANCHESTER.

I have been deeply interested in Dr. Amsden's paper as it has admirably covered what was to the most of us a revolutionary topic in infant feeding. A few years ago I took the reverse side of this proposition, that is, the high fat feeding. Strange to say children who could not be fed on the old formulæ were put on high fat and everything went well for a time. We got results, but we had indigestion and the trouble was hard to correct. The remedy was worse than the condition which we attempted to remedy. Of course, like most men having a new theory, we laid it on the milk. It was hard work to make us believe that fat was indigestible and many of us found constipation a hard thing to correct. There was too much proteid, and we cut it down, increasing the fat, and until we made up our minds that the fat was at fault, we got no result. It seems to me that if we had reflected a little we might have realized earlier that it is not the fat in the formulæ that was causing trouble, as the fat is not the most essential element in the child's food. It produces no bone and it produces no muscle. The fat does produce energy and it is necessary to have a development of the central nervous system, but outside of that the main article in mother's milk is the protein. A great mistake was made in assuming that the child's stomach was the test. A child's stomach is not the test. When you take foreign milk from any animal whatsoever and subject it to chemical analysis, taking a mixture which takes the same amount of salts, the same amount of sugar and the same amount of water, you have not a substitute for mother's milk by any manner of means. It is possible to take a mixture of butter, cheese, salt, sugar and water, and make something which no chemist can ever distinguish from mother's milk. The reason that fat acts as it does is rather

Digitized by Google

hard to explain. We know that the addition of fat to the protein mixture in the child's stomach interferes with the action, in the first place, of the secretion of the gastric juices, and in the next place, with the action of those gastric juices upon the globules of the milk. Just how or why, chemistry is not able to inform us, but we will learn in a short time.

Another thing is the well known fact that milk has been developed through long periods of years for the nurture and development of that particular species and for no other. There is a difference between the protein and the fats. Both are constituents of mother's milk and cow's milk. One is adapted for the development of the digestive system, a large percentage of digestive proteids being in the stomach; the other a small percentage being in the stomach. We find in mother's milk several curds. From the cow and any other animal, you will find milk which in the normal digestion of it develops hard curds. If we are going ahead simply on chemistry and paying no attention to anything else, we are attempting to do something which nature will not stand. We are attempting to develop in the child by our chemical formulæ a stomach which is akin to the stomach of the cow and not akin to the human being. Nature revolts and we get trouble. I think if any of us who are having trouble in feeding the modified milk, or any milk for that matter, will simply bear in mind the facts which Dr. Amsden has stated in regard to fats, you can readily tell that your trouble is due to fat. If you will take the bull by the horns, cut out the fat and substitute skim-milk, you will find in nine cases out of ten that the trouble will clear up, and where you have had constipation and colic in the child, you will get a child that sleeps during the day, digests its food, gains in weight and your stools become normal.

Digitized by Google

MARION L. BUGBEE, M. D., CONCORD.

Mr. President and Members of the Association:

It is with some misgivings that I speak on this subject after two such able discussions of the problem of infant feeding. When Dr. Amsden asked me to discuss this question I told him frankly that I did not believe in skim-milk for babies. Theoretically, I see no reason why one of the important food elements should be abstracted from the baby's food at all if the child is born with a normal digestion, as most babies are. All new babies, unless breast fed, I put onto a modified milk, using the percentage method for modification and adapting the food to each particular baby, as needed. This is a simple and easy method if the physician will acquaint himself with it thoroughly. It is easy for the mother to carry out if it is carefully explained to her. After ten years of constant use of modified milk for both well and sick babies, with good results, I can see no reason for giving it up. The number of calories are right for the child figured according to Dr. Amsden's method if the modification is right. This I recently proved to my own satisfaction from the food given three babies of different age which were being fed on modified milk. At the hospital we get a good many babies sent in to us throughout the year suffering from indigestion of all grades of severity, from the simple form up to extreme marasmus. These babies are put on a modified milk and almost without exception thrive on it and, with proper care, continue to thrive. Our most striking case last year at the hospital of this kind was a baby of four months of age, who came to us weighing only three and a half pounds. This baby was so weak that it had to be carried on a pillow and for some time no effort was made to dress it. She was fed modified milk and soon made most remarkable gains in weight, and is to-day of normal weight for a baby of her age. I have rarely been

Digitized by Google

able to find fat curds in the stools of the modified milk-fed babies, although the stools are frequently tested for them. Whether a doctor uses whole milk, fat-free milk or modified milk for feeding the babies in his charge, I do feel that he should give as much time and study to it as the scientific farmer gives to the proper feeding of his calves and chickens. If one might judge by the time and money devoted to these subjects by the United States government and by the people at large, it would seem that the proper feeding of the calves, pigs and chickens of the country was of far greater importance to the nation than the proper feeding of the babies.

Digitized by Google

SOME EVOLUTIONARY ASPECTS OF THE VERMIFORM APPENDIX.

JOHN H. BATES, M. D., EAST ROCHESTER.

In writing an article on the vermiform appendix viewed from the standpoint of evolution, I realize that it must essentially be fragmentary in character and hypothetical in its premises. Direct proof in speculative articles must often be lacking. Yet the science of evolution is no longer a theory. Our knowledge of its workings may be disconnected, but enough has been proven to establish it on a firm scientific basis. Nearly all scholars now accept the theory that our universe and all contained therein was gradually evolved through countless eons of geological time, and the doctrine of special creation as set forth in Genesis now survives only as a tenet of faith in ultra-orthodox creeds.

As physicians we are chiefly concerned with the pathological condition of various organs, and have little time to spend on study that will be of no practical benefit in aiding us to relieve the sufferings of mankind. However, the mind of man being by nature speculative, we are often curious to know more about genealogical development, a field of study which will certainly make us broader minded if not more practical physicians.

Reasoning from certain well founded premises of development, we are able to give a satisfactory explanation of some of the physical curios with which our bodies are burdened. In the light of modern evolution, our bodies appear a veritable curiosity shop, laden as they are with seventy or more vestigial organs, structures which have served their usefulness in our ancient ancestors, but for us in our present environment have ceased to have any

Digitized by Google

function. The most striking example of these ancestral relics is the vermiform appendix. Not only has it ceased to perform any useful function in the physical economy of man but its presence subjects him to constant danger of death and disease. While witnessing its ravages on the human race, have we not often wondered why man is encumbered with such a useless and dangerous structure? Have we not been nonplussed by some patient asking us what it was made for?

Through the study of development, we are taught that it was once a large and useful organ and was made to perform a function needed to adapt its possessor to live under certain conditions. Nature never makes a useless organ. By changed environment and manner of living, it may lose its usefulness and deteriorate in structure, but it was first evolved to perform some function conducive to the welfare of the species.

The broadest and most fundamental law of evolution has been stated in these words: "Environment determines function and function determines structure." Bearing the significance of this law in mind, we can understand how several different types of animals can evolve from one type. The individual members of a certain species, by stress of travel, changed climatic conditions and food supply, might be compelled to live under very different environments which in turn would call for new functions; consequently new organs must develop to adapt the animal to those conditions under which he is forced to exist.

Life from the beginning has had a tendency to grow more complex, from the homogeneous to the heterogeneous. The biologist, to-day, can study the development of the alimentary tract in all degrees of complexity from the simple unicellular amœba with no special digestive apparatus at all, to the highly differentiated alimentary canal of man. Through the study of biology we learn that the digestive tract of the primitive types of vertebrates was little more

Digitized by Google

than a straight uniform-sized tube. But the slow and ever changing environments of existence made a demand on their alimentary canal to assume new functions, which in turn caused new structures to develop. The simple alimentary tube of the amphioxus would not long suffice to support his more complexly developed descendant. Animals higher in the scale must have a larger intestinal area, with more specialized cells of secretion and absorption and, what more especially concerns us in this article, they must have some reservoir for partially digested food. In the fierce struggle for existence which existed in those barbarous ages, there was a creative force silently at work, unhampered by the artifices of civilization, which slowly developed all structures necessary for the continued existence of the animal kingdom. Adaptability to environment has always been the key-note of evolution. No two individuals of the same species are ever made exactly alike. One will always possess points, infinitesimal though they may be, which better adapt him to live and propagate his kind. The individual variations most conducive to the perpetuation of the species are likely to be inherited by each successive generation. This creative force operating by the law of the survival of the fittest, has been silently working since the beginning of animal creation. By this process it may take countless ages to evolve a new organ, yet its evolution keeps pace with the growing needs of the race.

The foregoing remarks on general development now lead us to a more specific consideration of the vermiform appendix; and I may say here that students of evolution believe this vestigial organ represents an arrest in development of a portion of the cæcum in many monkeys, rodents and man. Through the study of comparative anatomy we learn that many animals to-day, especially among the herbivora, have very long and capacious cœcums. This portion of the large intestine which is almost always

Digitized by Google

present in mammals, undergoes the most various modifications in different species, both as to form and size, according to the kind of nutriment. Thus in carnivora it is very small or even entirely wanting, while in herbivora it may exceed the whole body in length. An inverse development in size is usually noticeable between it and the rest of the large intestine.

In the development of animal life, the vegetable-eating kind, in which are found large cæcums, long preceded the flesh-eating, and because of the habit of foraging and eating almost continually during waking hours, there came a time in the evolution of their alimentary canal when there was a demand for an enlargement of some portion of it to contain partially digested food; so, by means of the creative force mentioned above, a reservoir which we now term cæcum was developed.

The function of this portion of the intestine may be studied in many types of herbivora at the present time. For example, the duck has two long appendices about equal in calibre to the rest of the bowel. After hearty ingestion of food these appendages are filled with a dark semi-solid matter which has been partially digested. During hours of rest these are emptied by peristaltic action into the intestine where digestion is completed.

There came a time, however, in the life of our ancient herbivorous ancestors when, perchance by stress of famine, some of them learned to like the taste of blood and gradually assumed carnivorous habits. They formed the habit of eating at more regular intervals. The stomach became more highly developed and consequently performed the major part of digestion. With these changes of development and manner of living the need of a large cæcum in this type of animals grew less and less. Function determines structure and with loss of function comes deterioration of structure. Thus, down through the ages, perhaps millions of years, in certain types of creation, this

Digitized by Google

arrest of development of the cæcum has gone on until in man at the present time nothing remains but a small sac, of intestine, with a vermiform process attached, the remains of what was once a large and useful organ. It has the same anatomical structure as the cæcum. At a certain period in the development of the human embryo, it has a calibre equal in size to the large intestine, and in the newly-born infant it is sometimes as long as in the adult. This precocity of development is an indication that it was not always the small and insignificant looking organ of the present.

In this brief sketch I have endeavored to give a rational conception of the development, function and degeneration of the vermiform appendix, viewed from the standpoint of well-founded premises of evolution. Carrying our reasoning to its logical conclusion, what must we expect to be the ultimate condition of this organ? The physical characteristics have not changed to any appreciable degree during the short period of time over which our knowledge extends. One thousand or even ten thousand years into the future may not suffice to rid us of this useless appendage. Whether or not man has reached the climax of physical development is a mooted question, but as there is a creative power to make new organs so there is a destroying force constantly working to modify or eradicate structures which have outgrown their usefulness. Nature is very economical of her forces and thinks little of sacrificing the life of an individual to further her plans.

There are abundant proofs that we have already lost some of these ancient vestigial organs. The study of embryology teaches us that in the cervical, lumbar and sacral regions, where no ribs are apparent in the adult, they are present at a certain period in embryonic development. This is proof that we have entirely lost some of the ribs which our primitive ancestors possessed. The rudimentary character and variety in size of the eleventh and twelfth

Digitized by Google

ribs of man show that they are gradually disappearing. In the development of the embryo a tail is apparent, but which to our present convenience has entirely disappeared.

Other examples might be cited of structures which have been wholly eradicated with nothing more than a scar remaining to tell of their former location. The fact that some of these reminders of our animal past have disappeared through loss of function, is proof sufficient that others will follow. As constant exercise is necessary to keep our muscles from a state of atrophy, so some useful function is required to keep an organ from a state of degeneration. A functionless organ has little vital resistance, consequently is especially susceptible to disease. This, we see well exemplified in the case of the appendix.

On this theory appendicitis may be more prevalent in future generations than at present, but frequent attacks of the disease and applications of the surgeon's knife will only hasten the day when man will be born physically free from this death trap—the vermiform process of the cæcum.

DISCUSSION.

JOHN H. NEAL, M. D., PORTSMOUTH.

In the paper offered by Dr. Bates, he stated that it was of no practical importance, but I think he is rather too modest in that respect. It is based on theory and that theory is so generally accepted that it can be termed a law, the law of evolution, and if, as the doctor says, it is degenerating owing to environment, then it must of necessity be a practical question, because it settles all the question of doubt as to whether the organ is of any use to anybody which I think has not quite been fully determined. There are some men, I think, and very good men, who insist at the present time that the secretion from the appendix may, and likely does, have some influence on the organism, but practically it seems to me that perhaps we

Digitized by Google

might raise a little question here with the tendency of the times. He has evolved the law that environment determines function and function determines structure. Now with the high cost of living at the present time, the tendencies which are showing themslves, and with the difficulties which we particularly, as physicians, have to meet, I would like to ask the doctor what he thinks the tendency will be with the appendix should the meat boycott become general and permanent, should the milk war between the producers and the middle men become so fierce that the great centres of population would be deprived of that permanently, what would the effect be? Certainly there would be a great big change in environment, and would not some of these people who belong to the appendix club be worried, fearing that possibly they might be driven to such environment that they would need a sac somewhere to carry an extra amount of food, as they would be obliged to live, and not have the concentrated food which modern civilization demands. If he will explain that point and give us his opinion as to what the tendency will be, I shall feel relieved as I have some friends and very near relatives who have lost their appendices.

CLOSED BY DR. BATES.

I have not anything further to say in answer to the doctor's question. I think we might apply that same law, that environment determines function and function determines structure, and if the present cost of high living still continues to increase, it may not have any particular direct effect on the vermiform appendix, but I think there are other organs that it is likely to have a direct effect upon, namely, the stomach, which will start in with the same process of degeneration; it will be hard for us to find where to keep it up to normal state of nutrition, and it will resolve itself into the survival of the fittest.

Digitized by Google

CONSERVATIVE SURGERY.

ALPHA H. HARRIMAN, M. D., LACONIA.

Conservative means saving, that is, this adjective, as applied to extraneous agencies, conveys the idea of safety; keeping things in their whole or natural state. I judge that, as applied to surgery, the whole body and its members must be considered, and the final return to comparative health, even at the sacrifice of some particular member or part; otherwise there could scarcely be any such a thing as "conservative surgery." There are two individuals directly concerned in the production of conservative surgery—the surgeon and the patient. Well practiced surgery conserves the surgeon, and attempts to conserve the patient, though ostensibly the patient is the only consideration.

There has been an attempt of late years to belittle conservatism, as applied to surgery. Other epithets have been devoted to what must be called a fair degree of old-time conservatism. Conservatism is an aged term of nomenclature, and has served a purpose of good and honorable use, and on giving this subject some considerable thought, it has occurred to me that it may not be the wisest course to pursue to discard this guide of our forefathers, but instead, to employ it even now, to indicate a safe and sound route to success, as best we may, and let it refer to good, honest, wholesome efforts and reasoning in work that means very much to those who require the curative agency of surgery.

In the first place, it will quite probably be well to be a little concise as to what conservatism should mean today, and what it has meant up to a comparatively recent

Digitized by Google

time. "It does not mean the do-nothing practice that some would have us believe, and properly interpreted, it never did mean that." To be conservative does not mean that where there is a fractured skull to treat we should be content to dilly-dally with drugs said to be vasocontractors while the patient dies from subdural hemorrhage, or compression of bone. That is not conservatism, nor is it good practice in any sense. Nothing so nobly conserves as a fearless opening of the cranium, removal of clots, and elevation of depressed portions of bone; and it may safely be said that no work of surgery gives better results, or gives them as soon as brain surgery following accidents of this nature. Every surgeon with a comparatively few years of experience can report case after case, almost of this kind, with complete recovery in a very great majority of cases, and what seems still more astounding, which is contrary to the older dictum, these recoveries are perfect recoveries. In most of these cases, death is almost certain to follow with no operation, while if timely and properly done, as said before, a complete recovery may be expected in a large per cent. of cases. It is nothing unusual for a man doing surgical work to be called at a distance to see an injury of this kind at so late a period that the patient is already dying from continued brain pressure, or from brain sepsis. Such an occurrence happened to one of our own men very recently. The man had been injured for something like thirty-six hours and died just as the consultant entered the house.

Conservative surgery, to my mind, "does not mean that middle ground where the surgeon is everlastingly fearing his own reputation." In such a case the surgeon may be conservative, but he conserves his own interest and not that of the patient. People will die, that is very certain, and sometimes they will die when not expected to do so, but the man who conserves the interests of his patient,

Digitized by Google

and does so honestly, will rarely lose favor by making good and what are thought to be efficient efforts for the patient. If the patient dies, and on after sight he still believes he was making efforts such as he himself would have had done by others with him, or with his friends, then he can afford the loss. That is a part of the game, if you will. That is conservative surgery, and it conserves the interest of the patient to the letter, and one who would deny the humblest patient a chance for life for fear of the consequences to himself in a civilized community is unworthy of the name of surgeon, much more of a conservative surgeon.

Nor does conservative surgery mean the everlasting rushing into trouble. The man who has an operation for nearly every ill that flesh is heir to cannot be conservative. It is not his nature, and he brings, according to his activity, more or less a degree of disrepute upon surgery; as he is known publicly to be a surgeon, those knowing of his methods will ascribe them to the most careful of men, if they happen to be surgeons, and then surgery in general with all its benign work will suffer in reputation, and were it not for the astuteness of the conservative in surgery many very essential and useful operations would well nigh be discarded and surgeons who practiced them would be common laughing stock in the gaze of the public.

For instance, observe the wholesale appendectomies that existed only a short time ago, and note how few today. Scarcely a case now comes to the hands of the surgeon until the appendix has ruptured, with all the dangers to life, with a whole train of post-operative conditions and complications when the patient lives. It is not conservative that every case should be operated upon that gives a history of one attack and apparent recovery, nor is it conservatism that allows a patient to have probably more than two attacks without operation.

Digitized by Google

Hustling every patient into a hospital with operative intentions with the first appearance of pain in the right iliac region has brought, or came near bringing, derision upon both medical men and surgeons, not because the public found out matters for themselves, but because the methods of good, careful surgeons were learned first and then compared with that of our energetic friend. A great deal of harm has been done in this way. Better by far that a few needless operations be done than that any should rupture, especially if they are deliberately allowed to do so.

After a patient has suffered two attacks of appendicitis, it can be nothing but inviting danger to advise further postponement. To be sure, one has to deal with practically only two conditions of the appendix. One is an obliterating process and is sure, eventually, to get well, even to go through innumerable attacks with practically no danger of ever rupturing, while the other is as certain to have a stricture with a so-called enterolith, or a collection of pus beyond the stricture, which is equally as certain as anything in medicine to cause gangrene sometime in the near future. At present there is no known means of distinguishing one from the other until they are open to inspection. So, it must be concluded that that which conserves best the interests of the patient, is to operate on all cases that are bound to give continued attacks of trouble.

Again, see what surgery that conserves the body at a sacrifice of a few tubercular foci in bones and joints, if done in a conserving manner, for be it remembered, there are conserving methods as well as conserving surgery. A radical surgeon may be excused if he be able to employ conservative methods.

Hip joint disease either kills or destroys the usefulness of nearly all its victims, when allowed free rein and runs clear of the surgeon, and yet how essential that a

Digitized by Google

high degree of conserving effort be depended upon to do just enough and not too much. By removing all dead bone and freeing all pent-up pus, the joint is left in condition for certain repair. By removing more than the dead tissue, and being a strenuous and the much-vaunted progressive surgeon, all hope of the future usefulness of the limb may as well be abandoned, or if one's progressiveness forces an operation before there is dead bone or pus that will easily be absorbed with the limb properly splinted and extended, the hope is equally bad. Or again, should the disease be called growing pains, neuralgia or rheumatism, that, too, is without hope, and this last is about what conservatism, by a popular understanding, has been doing of late, when, in reality, nothing could be more illogical, or contrary to the etymology of the word, its applied meaning, or use for its whole role of employment.

Conservatism is an anchor of hope. It is characteristic of good judgment, good reasoning, good diagnoses, good methods and capable always of giving good advice.

The progressive man buys books and instruments indiscriminatingly. He has scissors for everything that has to be cut. Surely, he has one for so simple a thing as cutting the umbilical cord, while the conservative man has become so expert in the use of one scissors of proper size, lock, and quality of steel, that any specialized make of scissors would properly be regarded as an incumbrance.

We are getting on so rapidly and learning so much that is not so that often it is wise to hang onto ourselves to keep from tumbling into the ditch with our advance guard,—the progressive.

You remember the story of the man chasing the rabbit. The rabbit ran in a circle. The man gets tired of that way of running and sits down for the rabbit to complete another lap and grabs him. So with the conserva-

Digitized by Google

tive man. He sits down and thinks, something that the progressive man rarely does. He observes the fatal errors and ditching of the herald of surgery and does not copy either, and thereby gets the reputation of a "stand pat"—a hindrance to real progress.

Only a few years ago there were men removing carcinomatous uteri with so extensive an invasion of the pelvic cellular tissue with the cancerous process, that bits of cancerous tissue and cancerous lymph glands were picked off the inner lateral surface of the pelvic bones and recoveries were reported. I wonder how many would believe such a thing would happen to-day, if properly reported. Much more probable the surgeon was taking the circuitous route, while his conservative associate, perhaps, pitied the man that was about to be caught as he made the extra lap of the race course.

We have been accustomed for some time to be mildly derisive at the man who treats "liver trouble" and a lot of typhoid-pneumonia, and this practice does have an odor about it that reminds one of the atmosphere of the promoter in other fields of commerce, but this zealous internist is no nearer the promoter in habit and business-getting intentions than he who dignifies every little physical procedure with the epithet "operation," and conducts himself after the manner of a trade hustler.

Why this everlasting rush? Why so desirous to operate? Is it not a sacred part of our mission to do some good? If we are just decent workmen, if we are busy doing something, people will soon enough find out what we can do best without our telling one of it. It is dangerous to specialize too exclusively. For instance, how many surgeons are capable of feeding a baby properly, and who, incapable of this, will be able to care for a toothless old man who has strangulated hernia, or a gangrenous foot, after a well done and appropriate operation has been performed.

Digitized by Google

It seems nothing less than a gross rebuke to us and to our calling, that we can not all so conduct our examinations and give our advice in such a wholesome and disinterested manner that any person who comes to us will be only too glad to accept it. That this ever present distrust, on the part of the public and individuals alike, should so persistently pester us day and night is one of the great obstacles to contend with in our whole realm of energy to cure and prevent disease, and a marvel to all that it should be so. Like all other objectionable things, it has its cause, and no two will agree, perhaps, on its remedy. But it seems that we have been too prone to be persistent in our efforts to get people to think as we think. It may be that the laity should in no sense be coerced into doing anything that does not appeal to them or their friends. After a careful examination of the patient, one made so thoroughly that we are willing to base our professional reputation and standing in medicine on the opinion we are about to give, the patient or his friends should then, unbiased by anyone, be allowed to decide wholly whether to accept our advice or not. The responsibility then rests directly with those interested and not with us. Medical and surgical methods, diagnosis and all, are so nearly reduced to exactness now that no one need fear contradiction if the attendant confines himself to his proper province of usefulness, even if other advice is sought.

The conservative man does not dread the thought of others going over ground already covered by himself. He is too wise to fear that. In fact, he invites criticism and thoroughness on the part of others to test his own conclusions. He knows full well that this is a means of establishing the confidence of the public in physicians and that ultimately someone will find out the right of it.

What of cancer of the breast, or better, what of any tumor of the breast? Conservatism need make no fur-

Digitized by Google

ther inquiry than if there is a tumor. The Mayos have shown that eighty per cent. of all breast tumors are malignant, and only death from other cause prevents half of the remainder from becoming malignant.

It would be interesting to know the true percentage of cures of cancer of the breast with known extension of malignancy to the axillary glands. Then to know the result of radical operations for cancer of the lip and mouth with known submaxillary involvment. Pretty good authorities are of the opinion that either case is practically hopeless. Then why anything as a curative measure beyond the simple operation?

Dr. Charles Mayo kindly writes that they are collecting a large amount of statistics upon this very subject and that it will be published soon.

Why problematically do anything? Why risk bringing into dispute the benefits of conservative surgery in these neglected and hopeless cases? Better, perhaps, they should continue their own course. Besides, there is the risk, which is very great except by the most skilful, of spreading the infection by operative procedure, and in all the danger of resulting criticism of doing ineffectual and unnecessary work.

So far as statistics go to-day the so-called radical operation has a slight advantage over the simple operation for malignancy of the head. That is, a removal of the growth, together with the glands draining the diseased area, has a small advantage over the simple procedure. But the spirit of true conservatism is lost in allowing the original growth to become thus extended.

One thing is as certain as anything can be if we would conserve the interests of the public, every man who practices medicine in any capacity should recognize that all superficial growths of a pathologic nature and every symptom and sign giving evidence of abnormal growths on internal organs should be most thoroughly investi-

Digitized by Google

gated, and if the history of such growth teaches that they ever have been known to become malignant, then such growths should be as thoroughly destroyed, or removed, whether at the time of extermination they are cancerous or not, for by so doing we employ the only possible means of forestalling a malignant process which is also as sure as anything can be to be followed by a fatal issue unless intervened by what we interpret to be conservative surgical measures. In this way many of the sadly mutilating operations will be uncalled for and never done.

The conservative has been too long abused. His progressive contemporary has been taunting him with pursuing "stand-pat" ideas, and accusing him of staying progress by his inability to adopt new fashions and fads, and of forever adhering to the old and staid ways and customs, but the amount of really new material is not comparatively enormous. When this advance guard of medical science has talked a long time—speaking, as perhaps he believed, wholly in original vein—it might be learned by a more or less careful inquiry that the new the progressive was offering was quite an old affair after all, and further, that the conservative had had opportunities to sift the same material and discard, at an earlier period, much of it that was worthless.

A conservative man is least of all a careless man. He does not change the order of things unless he does so wisely. If he makes haste slowly, it may be equally said that in his stand-still methods, things come back to him. He does not run in a circle. It is fairly conceded, I should judge, by all, that gastroenterostomy may even do harm if there is not actual obstruction at the pylorus, even in carcinoma of the stomach. Here you will note the necessary retrogression. The older methods of opening the abdomen are really coming back to us, not because they had been thought out just why for all time, but because the methods were conservative and careful.

Digitized by Google

They always opened the abdomen over the seat of trouble. Then, in later years, followed the criticism of producing hernia from trophic causes if opened through muscles, and now no one by preference opens the abdomen in its thinnest, and consequently its weakest part, but the nerves and blood vessels are conserved, and the muscles split, which is conserving all parts. By and by we will conserve the abdominal walls so well that nothing will be cut save skin and the peritoneum. This is, indeed, conservative, and at the same time nearly the old.

It may be only a matter of time when old diseased bones and joints will be replaced by normal bony structure taken from the lower animals—possibly not in our day, but it is almost sure to come. Lexner's bone and ligament experiments alone almost prove this statement, while he is only one among many engaged in this great work. Phelps of New York almost did it years ago.

Perhaps I have given to this subject a meaning it does not deserve in the judgment of many, but that is the way I interpret the meaning of the word. If it has been caused to mean what it did not stand for rightly, then we are not responsible; but for its future use, to keep us within safe bounds, to be an ever guiding index in our due course, to keep us steering clear of both Scylla and Charybdis; it is something very likely that we must all be responsible for, and it will be of good omen to observe in all branches of medicine, but especially in surgery, a wholesome, not faddish, degree of conservatism.

One more allusion and I am done. I refer to the use of the obstetric forceps—a purely surgical instrument. Its use is one of the most humane and conserving procedures ever invented. Yet it depends altogether in whose hands the instrument is, whether it is a conservative or a destructive process.

I have purposely dressed up the conservative in a

Digitized by Google

clean shirt, a clean collar and given him the dignity quite becoming the gentleman—and all this he possesses. He does not buy stock in some imaginary property situated in Africa or South America, which he has neither seen nor expects to see, though his progressive friend, as likely as not, will taunt him with being a conservative.

Conservatism keeps the surgeon something of a medical man. He does not take kindly to so radical a change as to be an abstract surgeon evolved from the man with the degree of *medecinae doctor*. There is in the exclusively progressive surgeon something of the nature of self-adulation—nothing that resembles vanity to be sure, but just a little inkling that the bright and shining scalpel is a kind of sunburst that causes the chest to fill a waistcoat a size larger than would otherwise be worn. The conservative surgeon also reserves enough medicine to make of himself a substitute for a medical laboratory on a small scale. He knows from a purely medical standpoint that certain conditions must be met, perhaps by days of proper dieting, before surgical procedures can be safely instituted. He knows that the thin and pale, so characteristic of tuberculosis, needs the sustaining help of generous diet in proportion to the appetite, and that the heavy and pale, so characteristic of arterial and renal affections, needs an abstemious diet in proportion to the appetite. Meat in the one case, none in the other. Increase of weight in one so that he may walk up stairs without undue puffing, and decrease of weight in the other in order that he may be able to do the same thing. Two conditions perfectly obvious in a passerby to the conservative man, who has hastened not to entirely specialize exclusively; but wholly lost on the exclusive and the progressive unless he has a laboratory at hand.

But when all is said, pro and con, there is, and can be, no such thing as conservative surgery. In establishing such a section and giving it characteristics one is only

Digitized by Google

characterizing men who possess certain traits of character, be they for good or for evil. There is only one reflection that may be justly cast upon the truly conservative. His reluctance to adopt new methods, his inability to adjust himself to new circumstances and his hesitancy in accepting new doctrines and new truths have brought upon himself all the complaint and derision of those who profess to be the progressive element. Spencer calls it the "fixity of habit." Even this trait is a salutary one and will so appear after due consideration. By adhering to already fixed ideas there is not the danger of loss to accumulated knowledge that otherwise must occur, for by refusing to carry out the methods of the very explorers of our science they guard and conserve knowledge already gained. The old principle of action of "keep what you have and catch all you can" is well illustrated by the customs of these two factions of medical practice. One keeps sacredly, almost, what he has, and the other catches all he can which later on is assorted into that which is worth keeping and that which is worthless, and the abundance of the latter argues well that we should ever be conservative in estimating conservatism in surgery.

DISCUSSION.

FERDINAND A. STILLINGS, M. D., CONCORD.

I listened to the doctor's paper with a good deal of pleasure, and I think it is one that cannot be discussed too often in the matter of conservative surgery. One, I think, should consider just what conservative means. I do not know but that I misunderstood him, but I understood him to say that he did not know that there could really be said to be anything of the kind because somebody might say there could not be. I think there can be conservative surgery. Think what the word means. I take it that conservative surgery means the conserving

Digitized by Google

of life first, and next the conserving of the use of members of the body and the different organs. In that way to achieve those results you have to use the most aggressive surgery that can be thought of or that can be done by anybody.

I think that any surgeon when he is called to a case should first study how much of a man's finger or hand, if hurt, he can save. He ought to save every bit that is possible, no matter how long it takes. I have heard it said that a working man was better off to have the balance of his finger cut off and let it heal up in a week, than it was to be three weeks healing. I say that a man may get three weeks' pay at the time, but he will more than make that up with a good index finger. I think the same thing should be carried into practice with the internal organs. The matter of the ovaries is an important question. I think they are very many times removed when there is no occasion for it. I think they should be conserved just as scrupulously as any of the other members or parts of the body. I do not believe that a sound ovary should be removed under any circumstances, but when you come to a sound appendix I have n't much respect for that, as it has been doing things to me for the last year. I think I would knock that in the head if I got a sight of it. I would cut it out on general principles. I think that would be conservative surgery because it would be less liable to cause an attack of appendicitis.

I do not believe there is quite conservatism enough at the present day. It is a nice thing in certain cases to have an operation, but I think we should save the different parts of the body all we possibly can. What is conservative surgery to-day, in hundreds of instances, would have been regular surgery only a few years ago.

The first abdominal operation that I saw done in this town was performed when nobody knew anything about

Digitized by Google

washing their hands. They handled the instruments in just the way they had been in the habit of doing. But that, of course, was all wrong. The handling is part of the growth of surgery. You cannot have too much talk in these meetings about conservative surgery. It should be urged upon young men, and middle-aged and old men, and I mean by that, conservative surgery that conserves life and conserves the useful parts of the human body.

Digitized by Google

A METHOD OF ANESTHETIZING TO BE EMPLOYED IN OPERATING ON THE AGED.

JOHN H. GLEASON, M. D., MANCHESTER.

Since the discovery of ether in 1846 by William Morton, a great deal has been written about anesthetics and their administration. Much original research and experimental effort have been directed towards the discovery of new anesthetics, the improvement of their qualities, and the betterment of their modes of administration. This experimental work of discovery has resulted in the adoption and use of many agents that will produce anesthesia, varying in marked degree as to profoundness, reliability and safety. Therefore, we have at the present time opportunity to make choice of several general anesthetics, and also many drugs that may be used to produce a local anesthesia.

For the average surgical operation the use of ether is most satisfactory, especially when administered by the "open drop method." When all the refinements of this manner of giving ether are used a "short anesthesia" results, with little or no nausea and few discomforts.

This, then, would appear to be the ideal method and I grant that it is most efficient and safe except in the following class of cases: Surgical procedures as ordinarily performed on very old people, with the aid of general anesthetics by inhalation, are usually accompanied with great risks and are followed by a very high mortality. Such patients suffer from arteriosclerosis and other changes incident to senility and easily develop secondary complications involving heart, lungs, kidneys and bladder.

Digitized by Google

These complications, we must confess, are directly influenced by and result from the use of a general anesthetic administered through the respiratory tract.

Hence it becomes our duty in dealing with aged patients to make use of an agent or agents which will produce little or no functional change. For such agents we must look to the list of local anesthetics which are administered by contact or to such drugs as produce local or general anesthesia when injected subcutaneously or into the spinal canal. In reviewing drugs we might mention cocain, eucain and novocain. The employment of these products hypodermically in major operations is very unsatisfactory, the anesthesia is not complete, there is danger of a lethal dose and the operator has the anxiety and the excitement of the patient to contend with.

The method of spinal anesthetization as recommended and practiced by Dr. Thomas Jonnesco, of Bucharest, Roumania, has recently received much attention.

Professor Jonnesco punctures the spinal canal at a level appropriate to the region to be operated upon. A solution of stovaine is used, which with the addition of strychnine is tolerated by the higher nervous centres. This mode of anesthetizing, according to the experiments in this country, has been far from faultless. One certainly should hesitate before adopting the practice of making high injections into the spinal canal. The vascular supply within the canal is rich and the danger of induced hemorrhage and its sequelæ is sufficiently great to at least make one cautious. Scopolamine gr. 1-100 combined with morphine gr. 1-6, given hypodermically every one and one-half hours until two or three injections have been given, has been employed as a general anesthetic. The last injection is introduced one-half to one hour before the time set for the operation.

This method was introduced by Schneiderlin in 1900 and has been extensively used by Emil Ries of Chicago and

Digitized by Google

others. Among the early articles on this subject to appear in the literature of this country, was a paper by Major G. Seelig of St. Louis, recommending the use of the drug as a preliminary to general anesthesia. He employed scopolamine gr. 1-100 and morphine gr. 1-6, to be injected one-half hour before the administration of the general anesthetic.

This procedure was adopted by many surgeons and is in more or less general use up to the present time. One of the great advantages of this method is the condition of tranquility and the drowsy state of mind which it produces in the patient before the general anesthetic is administered.

Scopolamine, however, must be regarded as a dangerous drug. There have been deaths following the careless use of this agent. Such fatalities, on investigation, have been shown to have resulted from too frequent administration and overdosage. Investigation of the literature shows that no death reported has resulted from the injection of as much as 1-60 of a grain in divided doses. We may take for granted then that the drug is perfectly safe if injected once or twice in small amounts.

Some six years ago I conceived the idea of combining scopolamine anesthesia with local anesthesia, using 1-10 of one per cent. cocain. I used the scopolamine to control the nervousness and the excitement which usually complicate operations performed under local measures.

This technique proved so successful that about one year later, opportunity having presented itself, I began to use partial scopolamine anesthesia combined with local sterile water infiltration anesthesia, in operating upon the aged. Regional anesthesia produced by sterile water infiltration is a perfectly safe and effective procedure. The aim should be to produce complete sensory paralysis of the part.

Satisfactory results in the matter of producing regional anesthesia are dependent upon the technique and, in order

Digitized by Google

to become proficient in this, practice and experience are essential. The operator must be familiar with the anatomy of the parts, especially as to the course and distribution of the sensory nerves. The injections may be thus made with accuracy where they will be most beneficial and without unnecessary insertions of the needle. To gain control of the field it is necessary to block the nerves by depositing sterile water around and in close proximity to them. I must place emphasis on the necessity of producing the condition of absolute nerve block in order to obtain the best results. Considerable fluid and some force must therefore be used. The degree of anesthesia produced is governed by the accuracy with which the location of the nerves is determined, the amount of fluid injected and the degree of force used. It is in this particular that experience and the resultant judgment which is developed is most valuable.

Having, therefore, adopted five years ago this, the use of partial scopolamine and local sterile water infiltration anesthesia, as a method of anesthetizing to be employed in operating on the aged, and having met with most gratifying success in its use, I would urge a careful consideration of this means of treatment.

I am convinced that by this method the management of surgical diseases in old people may be made comparatively safe, the mortality much reduced and seemingly inoperable cases made operable and curable. Of my three early cases, one was for colostomy to relieve obstruction at the sigmoid, and two were for strangulated herniæ. These cases suffered no pain at time of operation, were able to take food early and all made prompt recovery. They were all over eighty years of age. The following report of a few recent cases, describing in each instance the technique used in their management, will thus serve as examples of the treatment employed:

Case No. 1. Mrs. E. A. B. was aged eighty-seven years on December 2, 1908. She gave a history of a fairly healthy

Digitized by Google

life. Examination showed a large abdominal tumor with hard nodular masses near the crest of the left ilium, and the pouch of Douglas was also filled with a similar growth. Further examination developed a moderately loud mitral murmur, with kidneys and other organs negative. There was marked arteriosclerosis. The history of the tumor is as follows: In December, 1907, it was first noticed as a small globular growth. It developed gradually until April 1, 1908, when its size interfered with respiration, producing marked dyspnœa. The patient lived in Nashua and was then under the care of a colleague in that city.

After consultation it was deemed advisable on account of the patient's advanced age to aspirate the tumor. This was done and about four quarts of cystic fluid were withdrawn. This process was repeated from time to time as the cyst would refill, until during the three months preceding December 15, 1908, it was necessary to aspirate once every week in order to give the patient a fair degree of comfort. The last few times the operation was performed, the withdrawal of the fluid became very difficult on account of the growth of the surrounding cysts, and on account of the change in character and thickening of the fluid. Early in November, 1908, the family came to Manchester and the patient was then referred to me.

Some time later, in view of the fact that we could no longer aspirate successfully, we came to the conclusion that we would try to remove the tumor under local and scopolamine anesthesia. The matter of assured death or a chance for life was placed before the friends, and the operation was decided on.

The patient was given a mild laxative the afternoon preceding the operation, and on the following morning, December 21, 1908, the skin of the abdomen was prepared in the usual way. Broth was given during the night and water freely. At 8.45 A. M., scopolamine, gr. 1-100, com-

Digitized by Google

bined with morphia, gr. 1-4, was given hypodermically. At 10.30 o'clock a second injection was given of scopolamine, gr. 1-150, and morphia, gr. 1-6. At 11 o'clock the abdominal skin in the median line was thoroughly infiltrated with warm sterile water. The injection caused a little discomfort. The patient was in a slight stupor, but could be easily aroused when moved or spoken to sharply. At 11.10 the incision was made in the usual way, the many adhesions separated, the tumor delivered and its broad pedicle ligated. The abdominal cavity was dried and closed rapidly. Every precaution was taken to make the operation as rapid as possible, and from the time of the incision until the last suture was placed in the abdominal wall the time consumed was sixteen minutes. When the incision was made there seemed to be a slight squirm, as of pain, but at no other time during the operation was there any evidence of suffering.

The patient slept nearly all afternoon in a most natural manner. At 5 P. M. she took water and at 6 P. M. nourishment. Liquid food was given freely from that time on. At 7 P. M. I visited her, and she conversed on general subjects. After a good night she awoke the following morning and inquired when her operation was to be done. As a matter of fact, from the time following the second injection of scopolamine and up to the morning after the operation the time remained a blank to her. This is pretty good evidence of a painless operation. The patient convalesced rapidly. The bowels were moved on the third day, and normal diet resumed. She was propped up in bed from the second day and the headrest was used on the fifth day. Chair and blankets were prescribed on the eighth day. The wound healed perfectly and now, one and one-half years from the time of the operation, the patient remains well, takes railroad trips, drives about the city and enjoys to the fullest measure her further lease of life.

Digitized by Google

Case No. 2. Mrs. M., aged seventy-four, was admitted to the hospital May 1, 1909. The patient was a large, fat, flabby woman presenting advanced senile changes.

Examination showed general and advanced arteriosclerosis, mitral regurgitation and emphysema. The urine was negative. In the right inguinal region there was a firm broad mass the size of an orange. This mass was in the inguinal canal, was immovable and very painful. She gave a history of frequent attacks of pain in this region during the last two years, which attacks were accompanied with vomiting.

She had always been able to reduce the tumor until about six months before entering the hospital. During this six months the tumor had gradually increased in size and had become more and more painful.

The operation was performed on the morning of May 4. The patient was prepared in the usual way.

At 7 A. M., scopolamine gr. 1-100, combined with morphia, gr. 1-4, was given hypodermically. At 9 o'clock a second injection was given of scopolamine gr. 1-150 and morphia gr. 1-6. At 9.30 A. M. the skin and subcutaneous tissues in the right inguinal region were thoroughly infiltrated with warm sterile water. The patient was slightly delirious, which manifestation showed only in this case out of the series.

The incision was made at 9.45 A. M., the sac isolated and opened, and a very large, dark-colored omental hernia was exposed. There was some dark-colored fluid in the sac. The dense adhesions were separated and the presenting omentum and sac were excised. The wound was closed in the usual way. The patient slept in a natural manner the greater part of the afternoon. At 6 P. M. she inquired when her operation was to be done. Convalescence was uneventful and she made a very rapid recovery, and was discharged May 22, eighteen days after the operation.

Digitized by Google

I believe this result would not have been possible had a general anesthetic been given. The omental mass was examined and the report showed beginning gangrene of the proximal vessels of the same.

Case No. 3. Mrs. B., aged eighty, was admitted to the hospital May 31, 1909, and operated on the same morning. She had been suffering for one week from large, bleeding hemorrhoids. Examination showed exfoliating clusters of ulcerative hemorrhoidal veins. Some of the masses were exceedingly large. The patient was feeble, anemic, poorly nourished and there was a general arteriosclerosis. A mitral insufficiency had been present for several years. At 8.30 A. M., scopolamine, gr. 1-100, and morphia, gr. 1-4, were given subcutaneously. At. 9.30 o'clock the patient was placed in the lithotomy position and the anal region was thoroughly infiltrated with warm sterile water. Ten minutes later the sphincter ani was dilated and the hemorrhoidal masses were removed with clamp and cautery. The attention of the patient was held during the operation by an assistant engaging her in continuous conversation. She appeared not the least narcotized and at the conclusion of the operation made the statement that she had suffered very little discomfort. She made a very rapid recovery and was discharged from the hospital June 14, two weeks from the date of the operation.

Case No. 4. Mr. X., aged fifty-two, was admitted to the hospital November 3, 1909. The patient was a large fat man weighing two hundred and twenty pounds. Since early manhood he had been addicted to the continued use of alcoholics. The amount had been increased from year to year, until at the time of admission the quantity consumed daily was prodigious. There was marked sclerosis of the veins and arteries. Both the first and second heart sounds were accentuated. There was some dyspnœa but no emphysema. The liver was

Digitized by Google

slightly enlarged. The urine showed no trace of kidney change. Examination further revealed that all the superficial veins were engorged, several being dilated and rigid.

Some three months before admission to the hospital the patient had noticed a rapid enlargement of the veins on the palmar surface of the left hand. This growth soon became very large and pulsated. Pain also developed in the region of the growth and little finger and the suffering soon became intolerable. The little finger gradually became blanched and then dry and black. It was for this condition that the patient came for treatment. Examination of the part showed a left hand swollen on its palmar and dorsal surfaces and the skin over the region of the palmar arch covered with a network of large pulsating veins. There was advanced, dry gangrene of the little finger. Also some three weeks previous to admission one of the pulsating veins had ruptured and the resulting hemorrhage had been controlled with the utmost difficulty. A diagnosis was made of hemangioma of the palmar vessels, with obliteration of the blood supply to the little finger and resulting dry gangrene.

A plastic operation to resect the outer metacarpal bone, tie off and excise the angiomatous tissues and to amputate the little finger was advised and accepted. This case, I wish to state, was the poorest surgical risk I ever accepted, yet I felt free to operate on him, knowing that I could do so without using a general anesthetic by inhalation.

The operation was performed on the morning of November 4 at 8.30 A. M. Scopolamine, gr. 1-100, and morphia, gr. 1-4, were given subcutaneously. At 9.30 o'clock a large rubber tubing tourniquet was placed about the forearm, and the tissues of the hand were thoroughly infiltrated with warm sterile water. After a lapse of ten

Digitized by Google

minutes the operation was commenced, the little finger being amputated, the outer metacarpal bone resected, and the angiomatous tissue removed en masse, ligatures and sutures controlling the hemorrhage. The plastic effect was very good. The patient was not the least narcotized and suffered no pain. At the conclusion of the operation he walked from the operating room to his own room. He remained well, took nourishment normally and was up and about until the fourth day, when he developed acute lobar pneumonia, involving the lower lobe of the left lung. Five days from the onset of the pneumonia the dullness became bilateral. The initial temperature was 104.5. Resolution gradually took place, but on the tenth day an acute gastroenteritis followed, with much distention, another rise of temperature and great prostration. During nearly all this time the patient was more or less delirious. Heroic measures were adopted in supportive treatment, and at three different times his condition was so hopeless we practically gave him up. The hand looked well for a few days and then, from that time, made no effort to heal. The sutures gradually cut through and at last the wound opened up completely and bled copiously. The bleeding was controlled by tourniquet and the wound surface thoroughly cauterized with the actual cautery, to maintain control. There was never any sign of wound infection, no swelling or redness of hand or arm being present.

The wound gradually filled in as the patient's general condition improved. On December 23 he was discharged, strong and apparently well. The wound was almost healed and the result was promising. Now the lesson this case should teach is plain. If a slight surgical interference should overbalance such a weak organism and lead up to complications so easily, what might one expect to happen to such a patient operated upon under ether or chloroform? We might safely answer that the result would be fatal and promptly so.

Digitized by Google

Case No. 5. Mr. B., aged seventy-nine, was admitted to the hospital on November 9, 1909. He complained of a growth on the dorsum of the right hand, which had developed in one year. Six months previous he had had it removed by paste treatment, but it had promptly returned. Examination showed a large foul fungous tumor, involving the greater part of the dorsum of the right hand. The patient had general arteriosclerosis, chronic bronchitis, and prostatic hypertrophy. He had the appearance of a rather weak old man. The operation was performed on November 10, at 9.30 A. M. The same technique was employed as used in Case No. 4. The growth was removed down to the deep tissues and well out into healthy skin. The surface was then covered with Thiersch skin graft strips taken from the same forearm. The patient suffered no pain or shock, and made an uninterrupted recovery, except for discomfort due to the prostatic hypertrophy.

After some prophylactic X-ray exposures had been given to his hand, he was discharged on December 13.

You will note that the dose of scopolamine given in these cases is of varying amount. Operations upon the extremities require less of the drug to obtain the necessary degree of control. Such variations in dosage must be determined by the operator, according to his experience and judgment.

In conclusion, I must again urge the importance of this method of treatment in the management of surgical diseases in old people. We all know the mortality which results from the use of a general anesthetic upon those of pronounced senility. We realize the resulting complications of heart, lungs, kidneys and bladder, which are very likely to occur. We easily get into the habit therefore of classing these patients as inoperable. In view of this safe and accurate method of anesthetizing and, further, in view of the fact that patients operated on in this

Digitized by Google

manner continue to be nourished regularly, and do not suffer from functional disturbance of the stomach or any other organ, then why should we hesitate? Why should we carelessly doom these old men and women to shortened lives, when we can so surely tide them over and guide them to prompt recovery and comfort?

DISCUSSION.

DR. ALONZO WALLACE, NASHUA.

Mr. President and Members of the State Medical Society:

I have listened to Dr. Gleason's very interesting and instructive paper with pleasure, for it seems to me a subject about which we know too little, and one that is well worth following up and upon which we should inform ourselves, for there is no doubt but that it will be more universally adopted in the near future. I was especially interested in the case of Mrs. Berry, of whom the doctor has spoken, because she was a former patient of mine when living in Nashua. In May, 1908, I was first called to her; she was suffering from pain in the lower part of the abdomen on the right side. Upon examination I found considerable tenderness and the presence of a quantity of fluid, so that it was a question as to whether it was a simple case of ascites or an ovarian cyst.

It proved to be the latter and of a multilocular form. I at once advised an operation, but she was much opposed to it and her family were also set against her taking ether. But as time passed the pressure became so great that I was obliged to aspirate at least twice a month for several months, taking four quarts of fluid each time. Gradually the intervals became shorter, giving less and less relief, and before and at the time of moving to Manchester in October there were only seven or eight days between the aspirations. Finally, after being placed under the care of Dr. Gleason she reached the point where she was willing to yield to an operation,

Digitized by Google

providing it could be done without ether, which was accomplished, as Dr. Gleason has stated. I was present at the operation and I can assure you it was most satisfactory and successful. I saw her a short time ago and she is well and smart for an old lady of her age (as has already been stated). My own experience with this method has been exceedingly limited as I have always feared more or less danger from possible after effects.

In what literature I have had at hand recently I have noticed a few remarks that may be of interest on this subject. First, that the scopolamine-morphine nacrosis method is considered only as a preliminary to ether or chloroform. One author gives his experience with fifteen hundred cases. He says, "The evening before, the patient is given veronal; one hour before operation an injection of scopolamine-morphine, a moderate dose: scopolamine gr. 1-100 for the male and gr. 1-150 for the female; morphine gr. 1-6 for the male and gr. 1-12 for the female. After this the quantity of ether or chloroform required is very small, and he claims that post-operative complications are less." Another author "thinks it justifiable to try as an adjunct only; says it can also be employed before local anesthesia. It should be used in tetanus. Zeller practically comes to the same conclusion from an experience with one hundred and eighty-two cases. Durand finds it very satisfactory for children." So it would seem that it can be used for the young as well as the old. Evidently the practice of this method is a very interesting one, and one to which we all should give thought and consideration.

GEORGE S. FOSTER, M. D., MANCHESTER.

This subject of infiltration anesthesia combined with a general anesthetic condition brought about by scopolamine and morphine is certainly very interesting from the standpoint that it is an intermediate step between

Digitized by Google

the use of a general anesthetic, such as ether or chloroform, and the inoperable case in which those could not be used, and which would otherwise mean certain death. Not only is this true of the aged, but the writer of this paper can testify to the successful use of it in the young. I am aware of two cases upon which the writer has operated, one a man of middle age and another a person between twenty-five and twenty-six. The first case was that of a diabetic who had a complicating ulcer on the sole of the right foot, just beneath the anterior arch. This ulcer had involved the joints of the first and second toes and the corresponding metatarsal bones. The patient entered the hospital, and under scopolamine, morphine and infiltration anesthesia, combined with the use of a tourniquet applied just above the ankle, the two toes were removed and a part of the metatarsal bones resected. The patient experienced no pain, the wound healed rapidly, and to-day he is up and about his usual occupation. This happened two years ago last February.

Another case is that of a young man between twenty-five and twenty-six, who had an abscess of the lung, the abscess having been opened and drained under the influence of this narcotic.

Not only can it be used in this way, but it eliminates the use of cocain, following which we all know wounds do not heal so rapidly as they might. Infiltration anesthesia, using only sterile water, does not interfere with the healing of the wound. In combination with this method we must use a great deal of suggestion. The technique carried out must be done so in the most careful way. Everything must be quiet,—the handling of the instruments, the preparation of the operating table, the preparation of the patient, the nurses and doctors walking about,—all must be done eliminating the extra amount of noise, so as not to cause any mental disturbance and undue nervous excitement upon the part of the

Digitized by Google

patient. During the operation a great deal of suggestion should be given, and the patient's attention attracted from the environment, that is, from the operating field.

Another point is that the patients who are operated upon by means of this method can continue to take nourishment without any interference, and this is one of the most important factors in operations on those upon whom it is most useful, that is, the aged. It does not interfere with the nourishment and, therefore, does not take their strength. It also eliminates complications such as pneumonia and nephritis.

One case of complication was cited by the writer, which was perhaps, in this instance, more of a coincidence. I am sure if a general anesthetic had been given there would have been no question as to the cause of the pneumonia. The local anesthesia produced by the infiltration of sterile water is brought about by nerve block, producing pressure, causing ischæmia of the area involved and that directly producing granular degeneration of the nerve sheath, thus eliminating all of the sensory cells in the nerve. It certainly appeals to me as a method worth a great deal of consideration as a life-saving project.

Digitized by Google

ADDRESS

DELIVERED MARCH 24 TO THE MEMBERS OF THE GRADUATING CLASS OF 1910, DARTMOUTH MEDICAL SCHOOL.

A. C. HEFFENGER, M. D., PORTSMOUTH.

This day marks the beginning of your life's work. You have now completed that portion of the study of medicine which qualifies you to begin the practice of it, and this college, in giving you its diploma, endorses your fitness to go forth and heal the ills of man. The trust thus placed in you is a weighty one, and carries with it an obligation that requires constant and conscientious effort to live up to. Though by virtue of your diploma you are declared competent to begin the practice of medicine, that does not mean that you have mastered the science of it and need no longer study. In truth you have just begun the real study of your profession—for the great field ahead of you will present daily problems requiring deep concentration with the best analytical thought to insure a happy issue.

There is no profession more honorable than that which you have chosen, and certainly none which does more good in the world. If you go forth with the right spirit, a determination to do your best in all cases and under all circumstances, success will be yours. The degree of success in any one's case depends upon many factors, but equipment and personality may be said to be the chief ones.

Under the head of equipment must be considered the general and special education of the man. And here let

Digitized by Google

me state that broad and thorough mental training of the boy and young man, that is, a preparatory and college education along the lines of modern curriculum, brings the best prepared and most appreciative mind to bear upon the study of the scientific profession selected as a life's work.

The special education, or the study of the profession selected, must be pursued with systematic thoroughness from beginning to end.

Our medical colleges have settled upon a four years' curriculum as necessary for the student to devote to the study of his profession before being qualified to practice it. I should add to this an obligation of one year's service in a general hospital. At this juncture it is pertinent to take up the question of specialties.

Is a recent graduate justified in beginning the study of a specialty before practicing general medicine a sufficient time to learn the interdependence of the human organism, and the effect of general diseases upon all the bodily organs and tissues? I should say no, emphatically no. A general practice of five years is none too much to qualify a man to begin the study of a specialty, and be it remembered, specialties are becoming progressively narrower.

A specialist seeks and claims a special light in his restricted field, and he has it in the main; but this light is apt to become polarized and only illuminate certain lines. Eye men can see no headache aside from errors of refraction. Gynecologists can view headaches only through the medium of a speculum. This shows how important it is for a man to have had a few years experience in general practice to enable him to recognize the fact that headaches may be due to a multitude of causes.

Personality, above everything else, determines a man's success in the world. He may be ever so well equipped

Digitized by Google

for the work he undertakes, but if he lacks the personal ability to use it, or convince other people that he has it and knows how to use it, his life will be a failure. The physician's attitude toward his patients should be sincere, interested and sympathetic. Every man's ills are of moment to him or else he would not seek professional advice.

He has a right to your careful consideration of his case, however trivial it may seem to you, and will detect lack of sincerity or humbuggery on your part to your ultimate loss. Go into every case thoroughly, keep case record cards, and the exact history of your practice will be always before you. This is not only of vital importance to the successful treatment of your patients, but will prepare you to face with confidence, charges of malpractice, which in these days of ready litigation are apt to confront you at any time.

Your attitude toward your brother practitioners, local and general, will determine your professional standing.

A doctor may attain local and even national reputation with the laity, and be a great financial success, yet if his attitude toward the profession is not ethical, he can never obtain standing where he most needs it, and the ambition of every honorable man's life, the appreciation, esteem and commendation of his fellow-workers, will be denied him.

Do not view your brother practitioner as a competitor, but as a brother worker and ally, one to be consulted and relied upon in time of doubt and trouble. Each man's personality or individualism adapts him to certain environments. In those best suited to him he succeeds, while in others he proves an utter failure.

If we could only see ourselves as others see us, false starts in life and years of discouraging toil could be avoided. Twenty-five years may be said to be the average period of a man's fullest working life, and when he

Digitized by Google

has spent five of these years in a place and not proven a success, he should immediately change his locality. A good waiter may be no loser, but he must wait in the right place, and convince people that he can do something besides wait.

I have previously endeavored to impress upon you that the study of your profession is continuous so long as you intend to practice it. It is your duty to keep abreast with medical progress, and this means that you must read the best medical literature, join your local, county and state medical societies, the American Medical Association, and attend their meetings. Specialty clubs and associations are also valuable, and necessary should you be in a special field. Besides this, postgraduate courses should be taken when possible, every few years, and frequent visits made to metropolitan hospitals for a few days brushing up. Visits to the great medical centres abroad are valuable if they can be afforded.

The advent of cottage hospitals in the small cities throughout the country opens a new field for medical improvement, and they should be viewed from their helpfulness in the scientific treatment of patients, and not as a means of personal gain as has often been the case.

Of course the physician must live, and a proper and just understanding of the business side of his profession is absolutely necessary. Medical colleges teach you how to treat the sick but they do not teach you how to live while so doing. The young doctor is left to work out his own business problem according to his individual aptitude. The majority prove failures in this line and a few become commercial sharks and discredit the profession to which they belong.

Avoid contract work of any kind which does not pay the same prices as exacted by your fee table. And here let me say that a fee table giving dignified compensation should be drafted by local and county societies, gov-

Digitized by Google

erning rural and city practice, and this table should be lived up to. A cash book and a card index ledger system will fulfill all the requirements of book-keeping. Render your bills quarterly and see that those who are able, pay promptly.

In an article published in the North American Review, November, 1908, I discussed the medical fee for the benefit of the laity, and endeavored to impress upon the people that they pay no more than their just obligation and that the doctor receives no more than he has really earned.

Though a few specialists and favorites in metropolitan cities command large incomes, the profession generally is under-paid, a condition for which physicians are directly responsible by not charging an organization fee. In a brief address of this kind much must necessarily be omitted and, therefore, a simple endeavor has been made to place before you the salient features of medicine and its practice in such a simple manner as, it is hoped, may fix the highest ideals of the profession in your mind and prove of material benefit in your careers.

Digitized by Google

ASTHMA, IN RELATION TO THE NOSE.

THOMAS W. LUCE, M. D., PORTSMOUTH.

There are few diseases encountered in daily practice with the clinical features of which we are more familiar, and the etiology and pathology of which we know so little, as asthma. From the very earliest medical writing down to the present, so-called authorities have advanced many theories regarding the mechanism by which this form of dyspnœa is produced, but it remains as great a mystery as ever.

Among the later writers, Osler says that bronchial asthma is a neurotic affection characterized by hyperæmia and turgesence of the mucosa of the smaller bronchial tubes, and by a peculiar exudate of mucin, and also than an asthmatic attack may be due to direct irritation of the bronchial mucosa, by reflex action from irritation of the nasal mucosa and like influences proceeding from the stomach and other sensory organs.

He also mentions the following theories that have been advanced to explain the cause of an acute attack:

First.—That it is due to spasm of the bronchial muscles.

Second.—That it is caused by swelling of the bronchial mucous membrane.

Third.—That in many cases it is a specific inflammation of the bronchioles.

Fourth.—That it is due to reflex spasm of the inspiratory muscles, especially the diaphragm.

Various arguments have been advanced for and against all these theories, but at the present time the first and second only are generally accepted.

Sir Andrew Clark, in 1886, made a strong claim for

Digitized by Google

his theory that asthma was a neurovascular, trophic disease, the paroxysm being accompanied with circumscribed hyperæmic swellings of the bronchial mucous membrane on various parts of its surface, which appear and disappear with greater or less rapidity,—a sort of internal hives, the nerve discharges exciting the attack coming from certain peripheral influences and from the central nervous system itself. Many authorities support this hypothesis with various modifications.

Dr. Francis Hare, in 1903, advanced a unique proposition in support of the vasomotor theory. He stated his belief that the vasodilatation was as in migraine, the compensation for vasoconstriction elsewhere, or, as there are reasons to believe in some cases, the dilatation was primary and the constriction secondary and compensatory. In either case these opposite vascular conditions were co-existent and the asthmatic attack was the analogue of migraine.

Most authorities are of the opinion that asthma can, and frequently does, originate from intranasal disease. Some time ago Bosworth, of New York, in his "Diseases of the Nose and Throat," made the rather startling statement that the majority, if not all cases of asthma, are dependent upon some obstructive lesion in the nasal cavity, affirming that he personally had never seen a case of asthma independent of such a cause. As might be expected, such extreme views were not accepted by the general profession. Physicians found that, as a matter of fact, comparatively few asthmatics had any sign of nasal disease. Further, it was pointed out that the rhinologist was likely to meet only such asthmatics as were conscious of some nasal trouble, and furthermore, it was found that in only a few instances were the so-called cures brought about by intranasal surgery permanent.

In 1899, Sir Felix Semon summed up the results of the

Digitized by Google

treatment of asthma by the removal of gross lesions in the nose in this way:

Lasting benefit obtained, very small percentage.

Temporary benefit obtained, very large percentage.

No benefit obtained, very large percentage.

To which he afterwards added a fourth class, *i. e.*, those who were considerably damaged by intranasal treatment.

The most recent text-books in dealing with the treatment of asthma, merely mention that the nose and nasopharynx need attention if any gross lesion be found, but place most of the hope for obtaining relief upon climate, diet and drugs.

Until 1902, it had not been suggested to the profession that results could be obtained in asthma by treating the nose when there was *no* obvious lesion. At this time, however, Dr. Alexander Francis read a paper before the Clinical Society of London, in which he took the following grounds:

First.—That asthma is due to spasm of the bronchial muscles, and that it is probably always induced by reflex action.

Second.—That it is not directly due to any mechanical obstruction of the nasal passages, but that the irritation producing the spasm may originate in the nose.

Third.—That in the asthmatic state a morbid connection exists between some parts of the nasal apparatus and the respiratory, or vasomotor centres, whereby the stability of those centres is affected, and that area is on the septum nasi.

Fourth.—That the chief cause underlying the asthmatic state is an unstable condition of the respiratory centre, and that by cauterizing the septal mucous membrane he is able, in a large number of cases, to restore the stability of the centre, and so relieve a good percentage of his asthmatic patients.

He based his arguments on the clinical observation of

Digitized by Google

four hundred and two cases of all kinds of asthma, extending over a period of six years. These he had treated by cauterizing the mucous membrane of the septum in addition to such other treatment as was obviously necessary. A brief summary of his report is, as follows:

Whole number treated	402
Complete relief	194
Great relief	103
Temporary relief	70
No relief, or lost sight of	35

In 1907, the writer had an opportunity to see Dr. Francis demonstrate his method of treatment. The operation is painless, and apparently insignificant. After painting one side of the septum-nasi with a solution of cocaine and resorcin, he draws the lightest possible line with a fine galvano-cautery point, from a spot opposite the anterior third of the middle turbinate, forward and slightly downward for the distance of rather less than half an inch. In a week's time the operation is repeated on the opposite side. Afterwards it is done on alternate sides, at week or ten-day intervals, as occasion requires. At each operation a fresh spot is selected to cauterize. He employs the ordinary method of treatment for any lesion or abnormality found existing in the nose, which might be a possible exciting cause for the paroxysm, or a cause of the morbid connection which maintains the instability of the respiratory or vasomotor centres.

An exception is made in those cases with mucous polypi. These bodies are never removed until the treatment by cautery is terminated, if at all. These patients constitute the least hopeful class for permanent relief. There seems to be a marked insensibility of the nasal mucosa, nearly always associated with polypi, and their removal by no means relieves the asthma which, not infrequently, is aggravated by the operation. Further, it has been occasionally noted that asthma has made its first

Digitized by Google

appearance after the removal of polypi. It is the exception to find this disease the complication of marked nasal obstruction of a permanent nature, and still more rarely is it found associated with complete occlusion of the nasal passages. So Dr. Francis's experience has taught him to treat these polypoid growths with so much respect as to let them severely alone in his treatment for asthma.

We have long been led to believe that there were various kinds of dyspnœa, and we are accustomed to distinguish between spasmodic, gastric, cardiac and bronchial forms of asthma. But if Dr. Francis's theory is correct, it must undoubtedly be a morbid activity of the respiratory centre, which is responsible for all dyspnœa, except when disease of the lungs, or other organs, supplies a direct mechanical impediment to respiration. According to him, all asthma is fundamentally the same, however different it may appear, according to the nature, either of the exciting cause, or some prominent complication. It cannot, for instance, be maintained that the presence of a cat, or drinking a glass of beer would, in themselves, be a sufficient cause for asthma without the other necessary condition of an unstable respiratory centre. If we believe that these different forms of the disease are fundamentally the same, and differ only in the nature of the exciting cause, then the connection between asthma and the nose, if any, becomes one between the respiratory centre and the nose, and if there seems good reason to believe that the stability of this centre can be more or less controlled by treatment of the mucous membrane of the septum, far-reaching effects should be achieved. It may, of course, be contended that this is a purely empirical treatment, but it may as properly be argued that this hypothesis is as possible as many on which we consider the employment of drugs as perfectly orthodox and rational.

Digitized by Google

During the past three years I have followed Dr. Francis' plan in the treatment of forty-two asthmatic patients, and, while I cannot claim to have achieved the brilliant results that he reports, I can truly say that this method has given me far greater satisfaction than any other I have ever employed.

Most of my cases have had old histories, extending over long intervals of time, and nearly all of them had, of course, tried about every known kind of treatment. Only nine in the forty-two lived in Portsmouth. The other thirty-three came to me from outside towns, usually by reason of that free masonry that exists among hay fever and asthmatic victims,—a successful case being exceedingly fruitful of patients, and an unsuccessful case quite the reverse, in the locality from which the patient came. Because of the fact that my cases are so scattered, it has been somewhat difficult to follow them all up for the purposes of this report. For the same reason, I feel that a few would have had a different rating had they followed up their treatment, which was occasionally discontinued because of failure to obtain immediate relief, and the expense of traveling. In brief, my results are as follows:

Whole number of patients treated..... 42

Complete relief with no return of trouble, at the time of writing, so far as I am able to ascertain..... 10

Great relief, with infrequent recurrences, always relieved by treatment..... 9

Relief, *i. e.*, those cases who feel that their attacks are less severe, or the intervals prolonged because of treatment 9

Temporary relief, or those receiving some benefit at first, but found it not permanent, or not experienced in subsequent treatments..... 4

No relief, or patients after discontinuing treatment, were lost sight of..... 10

All of these cases were treated on general principles in

Digitized by Google

addition to cauterizing the septum,—that is, they were advised regarding their manner of living, diet and exercise. A number were given iodide of potash. All were instructed to continue whatever means they had found of value in relieving the acute attacks. I have tried to avoid establishing a belief that I knew a special spot in the nose that I could burn and cure asthma, independent of all other treatment. Yet I believe this to have been the essential factor in at least obtaining some relief for thirty-two out of the forty-two patients treated.

I have repeatedly seen the dyspnœa during an acute attack promptly relieved by an application of cocaine to the septum, the same amount of the solution applied to the throat, or swallowed, giving no relief whatever. I have also tried shrinking engorged turbinates with adrenalin during a paroxysm, with no benefit, following the enlargement of the passage, but which was very soon obtained after the application of cocaine to the septum.

In England the value of this procedure is pretty generally admitted. There have been some questions raised as to whether the morbid connection exists between the nose and the respiratory or vasomotor centres, whether the dyspnœa is due to spasm of the bronchial muscles, or engorgement of the bronchial mucous membrane. The treatment has been tried, and found of value in migraine, angina pectoris, and Raynaud's disease. As these are undoubted vasomotor disturbances, it would seem that this centre is at least acted through as well as the respiratory. This, however, is a question for the physiologists and pathologists, which I am not competent to discuss. Through a slight familiarity with the treatment itself, however, I do feel confident to advise its use in asthma, believing that those who take advantage of it, will find that they have a valuable weapon with which to combat a most obstinate disease.

Digitized by Google

DISCUSSION.

CHARLES C. ROGERS, M. D., FARMINGTON.

I have seen some patients who have taken this treatment for asthma. Two had it all of the time incessantly, and they report that they are very much more comfortable and scarcely have it now. I have acquaintances who have asthma who eat pork in the morning, noon and night, and they will have it inside of twelve hours. I have acquaintances who if they get the odor from a horse, will have asthma without any other apparent cause. I know of one in particular who will be taken with asthma through a slight cold right off instantly, lasting perhaps twenty-four to forty-eight hours, and have it quite bad; then he will be relieved and perhaps get entirely over it in a week and will perhaps go along for years without having it again. The one that has asthma from getting the odor from a horse has it all the time, and I believe in the theory that Dr. Luce has advanced here of the cause and the treatment. I believe that it is good treatment. I think I have seen more relief from that than I have from any other treatment of asthma.

FRANK E. KITTREDGE, M. D., NASHUA.

I have had considerable experience with asthma during the past ten or fifteen years and have found that it arises from diseased conditions of the turbinates, more particularly from hypertrophies of the middle turbinates where there may be pressure upon the septum.

The writer of the paper spoke of nasal polypi as not being a cause of asthma, and suggested that it is not always necessary to remove them if present. I have seen many cases of nasal polypi in bad asthmatics and have found that their thorough removal has invariably given either partial or complete relief. Furthermore, nasal polypi are frequently the result of sinus disease and if left in the

Digitized by Google

nose mean further trouble. Whether they may be the cause of the asthma in any particular case or not, and it is always safe to assume that they are at least partly responsible for it, if present, they should be removed in every case.

I have seen several cases of deflected septum in asthmatics, that have obtained marked relief upon correction of the deflection.

In many cases of asthma most brilliant results can be obtained as a result of the correction of some deformity or of some pathological condition in the nose. I believe that asthma, in the great majority of cases, is caused by some abnormal condition in the nasal passages.

I may further add that asthma is not the only reflex result of nasal trouble, but that we frequently see many reflex coughs due to the same causes.

Digitized by Google

NEPHRITIS.

FRANK B. EASTON, M. D., LACONIA.

The custom among teachers of urinalysis five or six years ago was to give such accurate instruction that all the future chemist would have to do would be to test a urine chemically and microscopically, analyze the findings and be able to say what ailed the patient's kidneys and, further, to say how they would look at autopsy. There was also a strong tendency among clinical men to foretell with a considerable degree of assurance whether a patient with given symptoms and urinary findings had a large white or small red kidney. The newer books on urinalysis and also on clinical medicine together with the current ideas among practitioners would indicate that the same tendency prevails today. The primary object of this paper, prepared for a meeting of the County Medical Society, was to give a somewhat different point of view; that is, the one held by pathologists and clinicians whose early training has been to a large extent in the pathological laboratory, that urinary findings cannot always be depended upon to discover nephritis, if present; to rule it out, if absent, or to tell what the variety of pathological lesion may be.

During the last twenty-five years an enormous amount of work has been done on the physiology and pathology of kidney conditions and the actual results have been so small as to be out of all proportion to the energy expended. Some facts, however, are well established. The function of the kidney, as a whole, is chiefly excretory, though there is some experimental evidence that it has a secretory function as well. Its importance in removing the waste

Digitized by Google

products of metabolism is second only to that of the intestinal canal and differs from that structure in the fact that while the material passed from the intestines has never really been inside the body, that from the kidney is the result of activity of all the cells of the organism. Accordingly, the bulk of poisonous or irritating material that once gets into the body must be removed by the kidney. Whether the mechanics of kidney excretion depend on diffusion, osmosis or selective action of the cells has long been a mooted question, and the answer appears to be that each of these forces plays a part.

As regards the different portions of the kidney which eliminate different substances, the rules of function may fairly be considered settled that the glomeruli excrete water and salts, such as sulphates, phosphates and carbonates; foreign substances such as sugar, peptone, egg albumin and hæmoglobin; while urea and uric acid are credited to the tubules. The adaptability of the different structures is such that under different conditions of blood pressure or other abnormal circumstance the function of the glomerulus may be taken up by the tubule and that of the tubule by the glomerulus. Then, too, the interdependence of one organ of the body on another is so great that in pathological conditions part of the functions ordinarily performed by the kidney may be taken up by the skin or intestines.

The subject of pathological conditions in chronic nephritis has been the ground for a lot of confusing statements. The reason for this is that an attempt has been made to classify diseased kidneys in three well marked varieties. That in which the kidney is large and bloodless with an easily stripping capsule, a wide cortex and prominent markings and microscopically, with large hyaline degenerated glomeruli; characterized clinically by œdema and dropsy, a small amount of urine, much albumin and many casts: labeled parenchymatous nephritis. That in which

Digitized by Google

the kidney is small and red, with a closely adherent capsule, narrow cortex, small dried up looking glomeruli and great increase of interstitial fibrous tissue; characterized clinically by no dropsy, no œdema but marked vascular changes, with the production of a large quantity of urine, small amounts of urea and albumin and few casts: labeled chronic interstitial nephritis. The third class, that in which the kidney may be larger or smaller than normal but in which the vessels show marked deposits of lime salts in their walls in conjunction with a generalized arteriosclerosis throughout the body: this variety is labeled arteriosclerotic kidney.

These are called standard kidneys by present day pathologists because rarely, if ever, is an organ found at autopsy which comes up to any one of these requirements. A kidney may rarely conform to one of the above types but even so, pathologists hesitate to report anything more than chronic diffuse nephritis; because there is always necessarily a change in the parenchyma from disease and the place of degenerated parenchymatous tissue is taken by interstitial fibrous tissue. The urinary findings give absolutely no clue to what the exact appearance of the kidney may be. You may find diminished excretion and a large amount of albumin and at autopsy an indeterminate kidney. You may find an increased amount of urine with a small amount of albumin and an indeterminate kidney. Furthermore you may have advanced arteriosclerosis in the rest of the body and none in the kidney and again advanced renal disease and normal urine.

You may see from this that the popular idea of having your urinary examination tell you what sort of a kidney there is in the belly, or even of finding your kidney disease at all, is not an entirely safe one to entertain. That the urinary examination is of value must be confessed, but negative findings do not justify you in telling a patient with other clinical signs of nephritis that there is nothing

Digitized by Google

the matter with his kidneys. The most essential things to know about the urine are those most quickly and most easily obtained. Of first importance is the twenty-four hourly amount, the specific gravity, the presence or absence of albumin and casts.

The etiology of chronic kidney disease must be considered in a general way. There are a variety of factors that enter into its production though why a given cause should be active in one person's kidneys and not in others is unknown; there seems to be a family predisposition and there is evidence that special strains of bacteria and their toxins have a predilection for kidney tissue. Certain cases undoubtedly start from an acute nephritis which run into a subacute and then a chronic stage; the chronic stage being characterized by exacerbations and remissions, the exacerbations meaning that new tubules and glomeruli are affected by an acute attack. Scarlet fever stands preeminent in conditions of this sort and nearly all infections may at one time or another be a starting point. The condition caused by bacteria and their toxins is usually characterized by a small amount of urine, a large amount of albumin and many casts. This variety more often occurs in young adults and children. The other condition is more apt to be caused by chronic poisons such as lead, arsenic, syphilis, intestinal toxins and ptomaines, though this rule is by no means invariable. Food, its amount and quality, is a real factor, the truism that more disease is caused by eating than drinking is as applicable to kidney disease as to disease of the stomach. When we consider the enormous amount of broken down and extraneous material that the kidney removes from the body, it is reasonable to suppose that the extra strain imposed by a large meat diet with its heavy and irritating waste material may cause trouble to a person whose kidneys are somewhat vulnerable or in whom they are already diseased. A classification of chronic kidney disease based on etiological grounds would, of course,

Digitized by Google

be ideal, but the variety of factors which are believed to cause identical lesions in the kidney has discouraged any serious attempt to take account of the cause in classifying the diseases clinically. As has been shown previously, the classification into parenchymatous, interstitial and arteriosclerotic, has serious objections, though that is the one generally used. Many pathologists and clinicians say that when you have diagnosed chronic nephritis or chronic diffuse nephritis you have given about as accurate a description as can be given.

The symptoms of chronic kidney disease arise chiefly from other organs than the kidney and are due to the fact that these organs are affected by substances in the blood which the healthy kidney ordinarily removes. The only symptoms directly referable to the kidney are increased or diminished urination and rarely pain. The patient often consults the oculist for sudden partial blindness which is found to be due to albuminuric retinitis. The first symptom may be apoplexy, a uræmic attack or large hemorrhage from the kidney. The close dependence of the kidney on the heart and arteries, and the heart and arteries on the kidney, should never be lost sight of. Pain referable to the kidney is rare and when present is spasmodic in character and is due either to hemorrhage, passage of clots or spasmodic engorgement. Oedema of the eyelids is an early symptom and is often accompanied by œdema elsewhere. The respiratory symptoms may be due to circulatory complication, pulmonary œdema, hydrothorax or pressure on the diaphragm of a large amount of fluid in the abdomen. It may run all the way from slight dyspnœa on exertion to the air hunger of uræmia. The heart and blood vessels are always involved; the heart by hypertrophy or dilatation, or both, and the vessels by arteriosclerotic changes. The symptoms referable to the gastrointestinal tract are nausea, vomiting, indigestion and distaste for food. They are due to faulty action of the

Digitized by Google

various organs on account of ascites, or they are uræmic manifestations. The blood shows a relative and absolute anæmia, the first due to the hydræmia and the second to lessened production of red cells on account of faulty metabolism. The nervous system shows the symptoms of uræmia. Headache, giddiness and malaise are common and as the disease progresses alimentary and circulatory phenomena supervene, air hunger and Cheyne-Stokes breathing, coma, unconsciousness and death follow in a longer or shorter time. The urine in some cases is not execreted, in others diminished in amount, it is of lessened specific gravity, lessened urea, much albumin (.2 to 5 per cent.) and many casts of all varieties. The urine of a patient having œdema may start in like the above, run along in this way for a while then gradually increase in amount, diminish the albumin and casts and thus show the change from the so-called parenchymatous to the interstitial variety. These cases may sometimes be explained as a spontaneous cure of an acute or subacute glomerulonephritis. The fact has been impressed upon us very forcibly that chronic kidney disease may exist when the urine is normal and albumin and casts may be found and the kidney be normal.

The outcome of chronic nephritis must in the end be fatal unless the patient dies of some intercurrent disease. Clinically straight cases, however, enjoy fair health for many years. Successive examinations of the urine give some knowledge of the progress of the disease. The case must be considered as a whole in order to foretell with any degree of accuracy the length of time the patient will live. In a disease whose aspects are so protean, a propheey limited to months or perhaps even years, is all that can be given.

The treatment in this condition is dietary, hygienic, hydrotherapeutic and only medicinal as symptoms may demand drugs. The diet should be regulated so that the

Digitized by Google

patient should keep his body weight and get along as far as possible without proteids. The diet should be made individual and those foods which the patient must not eat should be impressed upon his mind. It is not sufficient to hand out a printed diet list. Proteids allowable are white meat of chicken, fish, sweetbreads, milk and eggs. Meats should be boiled or broiled, they should never be fried, pickled or highly seasoned. Onions, asparagus, tomatoes, parsnips, cabbage and turnips should be on the forbidden list. Considerations of quantity are as important as those of quality. Patients should on no account overeat or use alcohol. Hygienically, they should be in perfect training. They should exercise, but not overexercise, bathe often, but in not too hot or in too cold water; they should sleep in airy rooms and dress warmly. Every chance should be given to the other organs to take a share of the work off the kidney. The bowels should be kept open and the skin active. Water is the best diuretic and the only safe one to use. Many anuric kidneys refuse to be flushed; they should be let alone until the amount of urine begins to increase when the intake of water may be correspondingly increased. Respiratory symptoms may be relieved by tapping when dyspnœa is due to fluid in any of the cavities; when due to an uncompensated heart lesion digitalis may be used. When the blood pressure is high, it may be lowered by starvation for a few days, by removal of fluid through the skin or intestines and by the aid of some member of the nitrite group. The use of drugs requires the exercise of good judgment to steer between the relief of annoying symptoms on the one hand and the production of harm on the other. Rest in bed during exacerbations is imperative. Morphine is often indispensable and lumbar puncture may be of temporary benefit in uræmia. Care must always be exercised not to use a drug, such as salicyate, for the treatment of some intercurrent affection which will have a deleterious effect upon the kidney.

Digitized by Google

An attempt has been made in this account of chronic kidney disease to give you an idea of how the disease is reasoned out by the men who are studying pathologically the cases which they know all about clinically; to remind you to guard against too close dependence upon urinary findings and of diagnosing a large white or small red kidney very often; to sum up the various causes of disease; to prophesy its course and conclusion; and to give the dietary, hygienic and therapeutic measures by which the patient's life may be prolonged or, at worst, made bearable.

Digitized by Google

STATE BOARD EXAMINATIONS.

GEORGE COOK, M. D., CONCORD.

It is my privilege at this time to give you my ideas upon state board examinations, and they are simply my own; in this I do not represent the board of which I am a member. I have not consulted with any other member about this matter, and I speak to you today as a fellow of this Medical Society, of which the state board is a part. It may not be inappropriate to say that I have served for several years upon the board representing the New Hampshire Medical Society, and my knowledge is not entirely theoretical.

The members of this board are state officers, appointed by His Excellency the Governor, to protect the interests of the people and guard them from incompetent persons practicing medicine in the state, as far as an examination will do this. We are not prosecuting officers. Primarily, I believe, the chief reason why boards were created was for the purpose of keeping quacks—notorious quacks, I mean—from plying their vocation in the state. This was indeed praiseworthy, and, as it was believed that none of them would ever apply for examination, no more would come in, and they soon would be eliminated as a disturbing factor among the people. This has not proved true in all cases. While all that were living in the state at the time the law went into effect, good, bad, and indifferent, had to be licensed, it was expected that the bad and the so-called indifferent in a very short time would be relegated to far more auspicious fields of labor. After a time, some of the boards in different states took upon themselves other prerogatives. To them it seemed proper and right that they

Digitized by Google

should dictate to the different medical schools just what and how they should teach, and they have gone into it so extensively it would seem as though nothing was left for them to suggest. The fact is, if a man could be turned out of a medical school at the end of the course mapped out and laid down in their curricula, even but fairly well versed in it, he would certainly be the marvel and wonder of the twentieth century. The young man fresh from his school should not be expected to know everything. Some boards require an examination in eighteen different departments. I presume they are very honest in this, and say that the dear people must be protected from the ignorant practitioner. It is easy to criticize methods and men, but if these criticisms are made for the purpose of helping on any good work they should certainly be welcomed and earnestly and seriously considered by those criticised. It is not my purpose here to criticise medical schools and their methods of teaching, as our subject is "State Board Examinations."

Let us mention some of the criticisms that we frequently hear made about the state boards:

1. They ask questions long since learned and forgotten.
2. They ask baby questions.
3. They ask questions that nobody can answer.

And while there are many other criticisms, I think we can sum them all up under the one expression, "Their questions and methods are not practical."

Now as to the first, "They ask questions long since learned and forgotten." This is a remarkable criticism! I do not believe we need to discuss it very much. It is very likely that there are many things that we have learned and forgotten; but when a candidate comes to sit down to a written examination, the questions are so presented that if he has had anything like proper training, the matter will be sufficiently recalled so that some sensible reply can be made.

Digitized by Google

Second, "They ask baby questions." I suppose this means simple questions—in fact, I have heard it said that the questions were so simple that it would be like asking how to spell cat. When we are forced to admit that many spell it "t-a-c," this criticism does not have very much weight, for all state boards will testify that it is the simplest questions that the candidate falls down on.

Third, "They ask questions that cannot be answered by anyone." Why! that is the very reason they were asked. This criticism has no claim here. Such questions are asked only occasionally, and it is done for the purpose of finding out if the applicant has any reasoning power whatever. Most always we find that he has very ingenious reasoning, that is, the candidate feels as though he must give some sort of a long drawn-out reply to the very questions to which the only answer that can be given is, "Unknown."

Now as to practical examinations. I presume the generality of criticisms here refer to practical questions—questions that refer to the every day work of the man in the profession, and certainly all boards should strive to propound questions that are really practical, and no catch-questions should ever be asked. I think all boards endeavor to do this; but there is another kind of practical examination, very much talked of now-a-days, which has to do with hand work, such as laboratory, or hospital demonstration. It has only been within some two years that anything of this kind has been attempted; but, like all good things, when once entered upon there seems to be no place to stop. This kind of practical work in the laboratory must represent histology, bacteriology, pathology, physiology, chemistry, and practical anatomy, while in the hospital physical diagnosis is to be exemplified, instruments of every conceivable kind and nature, together with the different forms of appliances used in treatment, must be identified. Not quite all has been mentioned as yet, for the candidate must come up against a trial case of lenses

Digitized by Google

to show what he knows about refraction. Manikin demonstrations in obstetrics is one thing more. I have not mentioned them all, but enough has been cited to give some sort of an idea of what this kind of a practical examination is made up of. I think our board here in this state would like to keep up with the times, and we have had a very little practical work in the laboratory in the past year, in histology, pathology and chemistry. I do not believe we should ever advocate the long list of ologies and different demonstrations required by some of the other boards.

It has seemed to me that all a state board can do is to guard the portal of entrance to the practice of medicine, and demand of all those who come before them an examination that will best show fitness to begin their life work, and not expert knowledge. And as most of the candidates are young men fresh from the schools, the examination that will test equipment in the so-called fundamentals is the best. While everything is fundamental, there are certain known departments of our profession that have been for ages considered as fundamental, such as anatomy, physiology, chemistry, therapeutics, pathology and diagnosis, obstetrics and gynecology, and surgery. In order to fully understand, or to understand in a wider extent, than was formerly thought necessary, some of these departments need the help, if carried far enough, of what may be called specialties, and these are, of course, to be used just as they are necessary to help the applicant to more fully understand these fundamentals. I thoroughly believe that our examination should be confined wholly to the fundamentals, supplemented by such laboratory work as may show the ability of a man to comprehend this fundamental work, and if this is done we will have no trouble as to mental equipment with the men who pass our state board. I do not think it wise to talk very much about professional school work, but if I were going to say anything I would like to enter my feeble protest against the amount of work

Digitized by Google

and the cramming process that is everywhere so prevalent in medical school teaching at the present time. Some one has said that a well educated man knows a little of everything, but a good deal of one thing; but with the present system, I cannot see how the last half of that can be true. I do not think it is the office of state boards to advise medical schools what they should do, no more than medical schools should advise state boards; but I do think that representatives from the teaching force of a medical school or schools in the state, together with the members of the examining board, might mutually confer at an informal meeting and very much good could be accomplished; for, notwithstanding all the imperfections of our state boards, they have been a very potent factor in helping to raise the standard of medical education in this country.

I may not be right in these things, but I hope the pendulum is swinging a little the other way at the present time, and that better work will be required along the line of the fundamentals and not expect the recent graduate to know everything. I believe it is impossible for any of our specialists to be a real success unless he has had the widest and most complete instruction in these fundamentals. It is certainly fortunate that certain men do take up what may be called electives and work along special lines, because no one can fit himself in all the departments of medicine at the present day. If the applicant can pass a reasonably good examination in the fundamentals, I will trust him in the elective he may choose. Some state boards have helped along the cramming process by providing for a division of examinations, allowing students who have completed two years to take their examination in the work of those two years in order that it may be laid aside and go along with two more years' work, at the end of which another examination is taken, which really amounts to the installment plan. This I am not in favor of. We have a right to expect that all men will retain enough of their first year's

Digitized by Google

work, four years at least, to enable them to pass, or their instruction has been in vain. While not really a part of our subject, it may not be out of place to just mention that good moral character, the possession of a diploma from a registered school, and a proper preliminary education, are among the requisites necessary for admission to state board examination. Much has been said upon these by many writers, but we must stick to our text just now—"State Board Examinations"—and to sum up: I believe they should be of such a character as will best test the applicant's fitness to begin his professional work. A fair and reasonable examination, both orally and written, in the fundamentals, together with such laboratory demonstration as will show the common things necessary to a more complete understanding of these same fundamentals.

There is still left, personality, temperament and adaptability, that have not as yet been suggested as essentials to an equipment to practice medicine, or certainly no examination has been required in these very important things. No doubt, in time, this will all be properly provided for. To my mind, the real crowning requisites to practice medicine are, that the candidate shall be a Christian gentleman, or gentlewoman, and shall have common sense.

DISCUSSION.

GEORGE H. SHEDD, M. D., NORTH CONWAY.

It is evident that this topic of the state board examinations is not very interesting. I have been somewhat isolated, and my department being in the practice of medicine, has been one in which I am alone; that is, I prepared the ten questions for each applicant. My own observation has been that it is the simple things that throw a man down. I certainly can agree with what Dr. Cook has said. It has been my endeavor to make all of my questions practical. Some may have been extremely simple and some may appear

Digitized by Google

somewhat complicated. Personally, I would favor one board instead of three boards, and also the doing away or dropping out of materia medica therapeutics in the practice of medicine partially, substituting, perhaps, two or three cases and thus help throw down the barrier between the different schools. I think two or three case questions would give to the medical examiner all the information that he needs to obtain. Personally, I am looking forward to the time when the state can agree for a national board, when the examinations will be uniform, and when a man obtains his license in the state of New Hampshire, he is licensed to practice medicine anywhere.

Digitized by Google

THE TREATMENT OF INOPERABLE SARCOMA WITH BACTERIAL TOXINS. (THE TOXINS OF THE STREPTOCOCCUS OF ERYSIPELAS AND OF BACILLUS PRODIGIOSUS.)

WILLIAM B. COLEY, M. D., PROFESSOR OF CLINICAL SURGERY OF CORNELL UNIVERSITY MEDICAL SCHOOL, NEW YORK.

Mr. President and Members of the New Hampshire State Medical Society:

I wish first to thank you for the invitation of your President to be with you on the occasion of your annual meeting and to take part in your program. The subject upon which I was requested to address you, "The Treatment of Inoperable Sarcoma with the Bacterial Toxins of Erysipelas and Bacillus Prodigiosus," is one upon which I have written so much and so recently, that I fear I cannot say anything very new; and when I accepted the invitation, I stated that my paper would have to be largely a repetition of the one read before the Royal Society of Medicine last July. There is some reason, however, for frequent repetition, when trying to convince the medical profession of the value of any new method of treatment or any new medical fact radically different from long-established tradition, and this is nowhere more true than in the field of malignant tumors. No better illustration of this could be found than Oliver Wendell Holmes' attempts to convince a skeptical profession that puerperal fever was an infectious disease, transmitted from one patient to another through the medium of the physician or midwife.

Digitized by Google

One half century before, Gordon of England had collected abundant evidence to prove the truth of this theory, but his facts had been largely forgotten, and the theory accepted by only a few until Holmes, in 1842, published his remarkable paper upon "The Contagiousness of Puerperal Fever." Holmes, in addition to the old evidence presented by Gordon, collected a great number of new facts, until he had marshalled such an array of evidence that would seem to have been sufficient to convince any jury that puerperal fever was a contagious disease and that the terrible mortality resulting from it was due to the carelessness of the attending physician and that every one of these deaths was preventable. Holmes' facts, however, were not answered by argument or by other facts, but by sarcasm and derision which, because they came from high places, were supposed to take the place of argument. Holmes' facts and conclusions were characterized as the "jejune and fizzenless dreamings of sophomore writers," and the leading obstetricians in the country boldly proclaimed their skepticism and stated that they preferred to attribute these deaths to accident or Providence, of which they could form a conception, rather than to a contagion of which they could not form any clear idea.

This was twenty years before the epoch-making discoveries of Pasteur, and yet Holmes was then standing at the very threshold of those discoveries with the key in his hands and almost the combination of the lock in his mind.

I did not intend such a long digression, which I offer only as an apology for what otherwise might seem repetition and reiteration. I will not go into the early history of the evolution of the treatment of inoperable sarcoma with the mixed toxins, except to say that it has been an orderly and logical evolution, originally founded upon indisputable clinical observations, namely that in a number of well-authenticated cases of inoperable malignant disease, chiefly sarcoma, but also a smaller number of carcinoma, the

Digitized by Google

tumors disappeared during an attack of erysipelas, occurring either by accident or inoculation and in many of these cases the patients remained perfectly cured. In an earlier paper I collected thirty-eight cases of malignant tumors, viz.: seventeen of carcinoma and seventeen of sarcoma, four miscellaneous, or type doubtful, in which attacks of erysipelas had occurred. Of the seventeen cases of carcinoma, three were permanently cured; of the seventeen cases of sarcoma, seven were well from one to seven years, and one, a probable carcinoma, was well five years after.

In a paper published in the *American Journal of Medical Sciences,* in 1906, I reported six additional cases, five epithelioma and one sarcoma, associated with accidental erysipelas, in which the tumors had completely disappeared, and only one case had been recurrent.

In a letter just received from Dr. Secord H. Large, of Cleveland, Ohio, he gives me the following history of a very interesting case of sarcoma of the neck cured by an attack of erysipelas which he observed in the year 1901. The same is briefly as follows:

The patient, a man of fifty, was suffering from a sarcoma of the neck which was considered inoperable on account of its extent and involvement of the glands. His son-in-law, who had come on a visit, advised them to use a poultice of live frogs. The method was to cut the frogs in two and apply them while they were warm. They used about a patent pail of frogs in the operation. Dr. Large saw the patient about twelve hours after this treatment had been given. He had a temperature of one hundred and four degrees, and developed a violent attack of erysipelas. Dr. L. pronounced the case hopeless. However, after the erysipelas subsided the growth entirely disappeared and the patient was still well without any recurrence when last heard from, a short time ago, nine years later.

I was first led to the use of the mixed toxins from the difficulties I had encountered in my experiments with the

Digitized by Google

inoculations of the living streptococcus of erysipelas, in 1891 and 1892. In twelve cases of inoperable malignant tumors treated by inoculation of the living germs, I had had two deaths from the attack of erysipelas, and in only about half the cases was it possible to produce erysipelas after many trials.

To avoid these risks and uncertainties I began, in the latter part of 1892, to use the toxins of erysipelas alone—prepared at first by simple sterilization of bouillon cultures by heat (fifty-eight degrees C.)—injecting these sterile cultures directly into the tumor. The marked inhibitory action of the living germs, even when no erysipelas was produced, led me to believe that some, if not all, of the value of the attacks of erysipelas lay in the soluble or insoluble toxic products which, after the cultures were killed by heat, could be used in definite specific doses to be determined by actual experience. The early experiments with these toxins of erysipelas gave slight reactions in doses up to twenty minims; slight inhibitory action was observed in most of the cases, but I had no complete disappearances of the tumors, much less cures.

At this time Roger of Paris (Pasteur Institute) had just published his experiments upon rabbits, in which he proved that by growing the bacillus prodigiosus with the streptococcus of erysipelas in the same media, the virulence of the erysipelas was markedly increased. Roger had not suggested the bacillus prodigiosus as a therapeutic measure nor had it ever been used, as far as I have been able to learn, upon a human being previous to my own experiments in 1893.

With the sole idea of increasing the virulence of the streptococcus of erysipelas, I adopted Roger's idea and grew the two germs together, and the first mixed toxins were prepared by Dr. B. H. Buxton, of the Loomis Laboratory, by growing the erysipelas in bouillon for ten days, then adding the prodigiosus and growing the two together for ten days longer, then sterilizing same by heat. This

Digitized by Google

was the preparation used up to four years ago, when Dr. Martha Tracy, of the Huntington Cancer Research Fund, at my suggestion, made a careful study of the toxins of the bacillus prodigiosus and found that the sarcomas in dogs disappeared entirely under the injections of the bacillus prodigiosus alone, but that disappearance of the tumors was more rapid when the combined toxins were used, than either alone. I had previously become convinced that the bacillus prodigiosus had an important inhibitive value of its own, independently of the erysipelas, from the fact that the best results were obtained with the toxins of a deep red color in which large amounts of the prodigiosus were present. Dr. Tracy's experiments suggested to her an important improvement in the preparation, and this was to grow the two germs separately and then add to each ounce of the streptococcus bouillon cultures a definite amount by weight of the prodigiosus proteid or dry toxins grown on agar. These changes resulted in a far more accurate standardization of the dose than was possible with the older method. The new preparation is more powerful and the results within the last four years have been distinctly better than those obtained with the older preparation.

With regard to indication, administration and duration of the treatment, I cannot do better than quote from my paper recently published in the "Proceedings of the Royal Society of Medicine," November, 1909:

INDICATIONS FOR THE USE OF THE TOXINS.

While in all my earlier papers I have practically limited the use of the toxins entirely to cases of inoperable sarcoma, further experience has convinced me that they have a much wider field of usefulness. I would at present advocate their use:

First, in all cases of inoperable sarcoma.

Second, in cases of sarcoma originating in the long bones in which operation means a sacrifice of the limb. If in

Digitized by Google

these cases no improvement is noted at the end of two or three weeks, I would then advise excision, resection or amputation according to the individual case.

Third, in all cases of operation for primary sarcoma directly after wound healing as a prophylactic against recurrence.

Fourth, in addition to the foregoing, I think there is good ground for believing that the use of the mixed toxins after all operations for carcinoma would greatly lessen the number of recurrences. This opinion is based partly on the clinical observations of a considerable number of cases in which both epithelioma and carcinoma have entirely disappeared and been permanently cured by attacks of accidental erysipelas, and partly upon the marked inhibitory action of the mixed toxins upon inoperable carcinoma, as shown by actual experiments in a large number of cases, and finally by the entire disappearance of inoperable carcinoma in a very few instances.

The Toxins as a Prophylactic Against Recurrence After Operation for Primary Sarcoma.

The use of the toxins as a prophylactic after operation for sarcoma I believe to offer by far the most important field of all, and one that is gradually being appreciated by the profession. At the Mt. Sinai Hospital in New York, the toxins are now used by Dr. Gerster and Dr. Lilienthal in all inoperable cases of sarcoma, as well as a prophylactic after operation for primary sarcoma, and many others are beginning to use them in this way. Dr. Lilienthal now uses them as a routine measure after all operations for carcinoma as well.

I have already a sufficient number of cases of sarcoma in which I have used the toxins as a prophylactic measure to justify such use.

The following is a partial list in which the toxins have been used after operation:

Digitized by Google

Case 1. Sarcoma of finger, periosteal, round-celled (Welch) imperfect removal; amputation considered, but a trial of toxins determined. Toxins three to four months, systemic chiefly. No recurrence, nine years.

Case 2. Sarcoma of triceps muscle; round-celled (Professor Whitney, Harvard Medical School). Suspicion of recurrence when toxins begun a few weeks after operation. Patient now well, five years later.

Case 3. Testis; round-celled (Professor Whitney). Recurrent in other testis; castration; toxins after second operation for four months; patient well at present, over eight years.

Case 4. Testis, round-celled; very rapid growth; castration; toxins three months; patient well over three years.

Case 5. Testis (round-celled sarcoma of undescended testis). Removal; tumor very large; almost certain that some sarcomatous tissue was left behind; toxins as soon as wound had healed; patient well one year later.

Case 6. Humerus; very large tumor; size of a man's head; amputation followed by toxins. Patient well over a year; no trace of recurrence.

Case 7. Clavicle; excision for rapidly growing round-celled sarcoma of clavicle (microscopical examination, Professor Whitney, Harvard). Toxins begun immediately after wound was healed. Suspicion of recurrence before toxins were begun; toxins given for one year; patient in perfect health at present, one year later.

Case 8. Tibia, round-celled; toxins before and after amputation; no recurrence two years.

Case 9. Hand; four operations before toxins were given; toxins two months. Patient well six months, when lost sight of.

Case 10. Sarcoma of metatarsal bone, periosteal, round-celled; rapid growth; amputation; toxins four months after operation; patient well eight years.

Digitized by Google

Case 11. Sarcoma radius; amputation; toxins three months; patient well three years.

Case 12. Sarcoma femur; amputation below trochanter; toxins four months; patient well three years.

Case 13. Sarcoma femur; amputation below trochanter; toxins four months; patient well two years, ten months.

Case 14. Sarcoma femur; amputation; toxins four months; patient well two years, nine months.

Case 15. Sarcoma kidney. Child 1 1-2 years; round-celled; nephrectomy; given nearly a hopeless prognosis; toxins used almost two years. Child in perfect health at present, four years.

Case 16. Sarcoma femur; amputation below trochanter; toxins six months. Patient still well at present, eight months.

Case 17. Sarcoma of biceps muscle, round-celled; recurred two to three weeks after excision; toxins after second operation. Recurrence delayed, but not prevented; amputation shoulder joint January, 1908; patient in perfect health at present, July 1909.

Case 18. Sarcoma breast; entire breast involved. Rapidly growing spindle-celled sarcoma. Amputation (Dr. Parker Syms). Toxins two months under my direction. Recurrence about six months later; death within the year.

Case 19. Carcinoma clavicle, total excision. (Dr. Thomas W. Huntington, San Francisco, 1908.) Mixed toxin administered six months after operation. Patient well at present, nearly two years.

Case 20. Clavicle, total excision (Wm. B. Coley, M. D.). Toxin for six months after operation. Patient well at present, nine months later.

The Toxins as a Prophylactic Against Recurrence After Primary Operation for Carcinoma.

While I have not sufficient data to enable me to speak emphatically in regard to carcinoma, I believe the in-

Digitized by Google

hibitory action of the toxins upon carcinomatous cells,—sufficient in an insignificant number of cases to cure a large inoperable tumor—to be sufficient to prevent recurrence in a considerable number of cases if used after operation. When used as a prophylactic measure in the way I have indicated, I believe the toxins to be entirely devoid of risk. No deaths have occurred in the cases in which the treatment was used as a prophylactic. In these cases the dose given is smaller and it is not increased to the point of producing severe reactions. A moderate temperature of 99 to 101 degrees is all that is required. This will not in any way interfere with the ordinary routine of life. The toxins can be given for long periods of time without any harmful effects, as is shown by a case of eight times recurrent sarcoma of the chest wall in which the treatment was continued for four years and the patient is now well fourteen years after the beginning of the treatment or ten years after its cessation. The treatment did not in the least interfere with his regular work. The treatment can be perfectly well conducted by the family physician.

I have known several other cases in which the toxins were given for two years without any unfavorable effects.

Administration and Dosage of the Mixed Toxins.

Much depends upon a judicious determination of the dosage for the given case. As a rule I like to give as much as the patient can safely stand. I always begin with one-fourth of a minim, diluted with sufficient boiled water to ensure accuracy of dosage, injected either into the buttocks or pectoral region. After the individual's susceptibility has been ascertained, one can then inject into the tumor itself if it is in an accessible region. The initial dose into the tumor should always be less; not more than one-fourth of that used elsewhere. I believe it a good plan to give the injections alternately into the tumor and into the buttocks or pectoral region. Daily injections should be

Digitized by Google

given, increasing by one-fourth of a minim until the desired reaction, namely, a temperature of 102 to 104 degrees Fahrenheit has been obtained. This should be modified to suit patients in a weakened condition. Having secured the desired reaction, the dose should no longer be increased until it fails to give a reaction, when it can again be increased by one-fourth to half a minim. The dose varies greatly with different individuals, the highest dose ever given in many of the cured cases has been 7 to 8 minims, and on the other hand a case of spindle-celled sarcoma of the sternum and cervical glands, (microscopic examination by Dr. James Ewing, professor of pathology, Cornell University Medical School), showed little improvement until large doses, as high as 30 minims, had been given directly into the tumor. The treatment was carried out by another physician, Dr. David John of Yonkers, N. Y., under my direction. The tumors entirely disappeared and the patient is still well nearly three and a half years later. I presented her before the New York Surgical Society a year ago.*

The greatest obstacles to a fair trial of the toxins up to the present time have been (1) the difficulty of obtaining a preparation of the toxins of uniform standard of strength and efficiency. I will here state that all of my results have been obtained from toxins prepared by Dr. B. H. Buxton, professor of experimental pathology, Cornell Medical School, from 1893 to 1906; from 1906 to the present time by Dr. Martha Tracy, assistant pathologist to the Huntington Cancer Research Fund, who received personal instructions from Dr. Buxton in the method of preparing the toxins. Dr. Tracy's own modification of the method of preparation by means of which it has been possible to standardize a dose, is a marked step in advance. The preparations before this time were much more variable in strength and efficiency. (2) The published failures of a

* July 11, 1910 a note from Dr. John states that there are some symptoms of recurrence.

Digitized by Google

few men who have given the method a limited and most imperfect trial, usually with a preparation of the toxins entirely different from that used by myself. (3) The number of cases of sarcoma is so limited, that the ordinary physician or surgeon sees not more than one or two cases a year and even in large hospitals there may not be seen more than five or six cases a year, and these are chiefly operable cases. In these the tumor is removed, patient is sent home until later when a recurrence has taken place and he is again sent to the hospital. If operable the tumor is again removed, but if not he is sent home and his physician advised to make his end as comfortable as possible.

Occasionally the physician has heard of the use of the mixed toxins in such cases; if he has read of the method he has probably forgotten the details, and has little faith in its value. Now and then a surgeon is found who takes the time to give the matter special thought, and who is willing to give the patient the benefit of a trial with the toxins. He begins with some fears and more doubts, and when he sees the patient in one of the severe chills, sometimes with marked cyanosis, very rapid and feeble heart action with a temperature of 103 to 105 degrees, he hesitates to go on or is unable to instil into the patient the courage and confidence so necessary to enable him to continue the treatment to a successful termination. For these or other reasons, injections are stopped and the treatment is pronounced a failure.

Duration of Treatment.

It is very hard to lay down any definite rules as to the duration of treatment that would apply to all cases. My own feeling based upon experience up to the present date, is that there is much more danger in stopping the toxins too soon than in giving them too long. That they can be given for very long periods without harm, is shown by some of my cases, one in particular having taken the tox-

Digitized by Google

ins with some intervals of rest for a period of nearly four years. He had had eight operations for recurrent spindle-celled sarcoma of the chest wall. At each operation the tumor had become more malignant, and the case was considered quite hopeless from the standpoint of further operations. The treatment was given in small doses which, after the first few weeks, did not interfere with the performance of the patient's duties as a surgeon. He is, to-day, in perfect health fourteen years after the beginning and ten years after the cessation of the treatment. In many of the prominently successful cases the toxins have been given for comparatively short periods, six weeks to three or four months. One, an inoperable sarcoma of the abdominal wall, had only thirty-one injections and entirely recovered and was well when last seen, one and one-half years later. Another case, an inoperable sarcoma of the abdominal wall, spindle-celled, pronounced hopeless by Prof. Maurice H. Richardson of Harvard Medical School; diagnosis confirmed by microscopic examination by Professor Whitney, disappearance of the tumor under four months treatment in the fall of 1894. The patient is, to-day, in perfect health fifteen years later.

Another case, an inoperable sarcoma of the breast and axillary glands and pectoral muscle; diagnosis confirmed by Prof. W. H. Welch of Johns Hopkins; the tumor disappeared after seventy-eight injections (1895), and the patient is still in perfect health. I presented her before the Medical Society of New York, in February, 1909, fourteen years later.

Another case of inoperable sarcoma of the abdominal wall and pelvis, involving the bladder, was treated with the toxins for six months (January, 1893). The tumor entirely disappeared and I presented the patient before the New York Surgical Society in 1898 in perfect health, fifteen years later. In this case the patient had been pronounced inoperable by Dr. L. Bolton Bangs and the diag-

Digitized by Google

nosis of spindle-celled sarcoma was confirmed by Dr. H. T. Brooks, professor of pathology at the Post-Graduate Medical School.

In a few cases there has been a recurrence of the tumor after it had once disappeared under the toxins treatment, and I feel that had the toxins been given for a longer time, a cure might have resulted. My first case of sarcoma of the neck and tonsil, recurrent and inoperable, was treated with living cultures, finally resulting in a severe attack of erysipelas. The tumors nearly disappeared, and the patient entirely recovered his general health, but finally died eight years later from a local recurrence.

In another case of extensive sarcoma of the back with large metastatic tumors in the groin, the tumors entirely disappeared under living cultures of erysipelas. Recurrence quickly followed but finally disappeared under the injection of the toxins. Patient remained well for three and one-quarter years, when he died of abdominal metastases.

With a very few exceptions—four or five—all cases in which the tumors disappeared under the toxin treatment have remained well. These few cases of recurrence furnished the most convincing evidence of the undoubted influence of the toxins upon sarcoma, inasmuch as they absolutely prove that, in these cases at least, there could have been no error of diagnosis. Can we then form any practical rules to guide us as to how long the toxins should be administered? I would say give the toxins until the tumors have entirely disappeared and then continue in smaller doses and at greater intervals for three or four months longer. If no improvement is noted at the end of four or five weeks, a successful result is not likely to occur and retardation of the growth is all that can be expected from a further use of the toxins. A concrete example may be of some help in determining the duration of treatment, for example:

Digitized by Google

Recurrent Inoperable Round-Celled Sarcoma of the Back with Metastatic Tumor of the Lower Jaw (Large Round-Celled).

Entire disappearance under two months' treatment with the toxins. Patient well at present, nearly three years later.

Male, aged 35 years; very large and rapidly growing sarcoma of the back (lumbar region), for which he had two operations in rapid succession, in September and October, 1907. He had developed a metastatic tumor in the lower jaw and lost forty pounds in weight, and was sent home to die by his attending surgeon, Dr. Biddle of the State Hospital of Pennsylvania. Microscopial examination had been made by the pathologist of the Jefferson Medical School, Philadelphia, who pronounced it a large round-celled sarcoma. The patient was brought to me in November, 1907, greatly emaciated and unable to walk without help. In view of the very rapid growth of the tumor with such early bone metastases I gave a very bad prognosis but still thought it worth while to try the toxins. The toxins were nearly all given systemically, *i. e.*, into the buttocks; only four or five doses of the filtered toxins were injected into the tumor of the jaw. He was quite susceptible to the toxins; highest dose he ever received was 8 minims. He was not able to stand more than four or five doses a week. At the end of one month there was slight improvement; at the end of six weeks the improvement was marked; from that time on the tumors melted away with great rapidity, until at the end of ten weeks there were no traces left either in the back or jaw. On February 8, 1908, three months after the treatment was begun, the patient had regained his lost weight and most of his strength and was sent home. The toxins were continued by the family physician twice a week for two months, and once a week until July, 1908, since which time he has had no further treat-

Digitized by Google

ment. No treatment other than the toxins was given during the whole time. I presented him before the New York Orthopædic Association, February, 1908, and examined him a few weeks ago at my office. He has gained sixty-nine pounds in weight and there is no trace of a tumor in any part of his body, and he has been performing his regular duties as a manufacturer for now more than two years. (He is well at present, August 1, 1910, nearly three years.)

Dangers of the Toxins.

The risks of the treatment have been unduly emphasized. While I have personally found the administration of the mixed toxins practically free from danger, there have been several fatal cases in the hands of other physicians brought to my notice which, taken together, show that there are certain risks connected with the treatment. If, however, the precautions which I have always carefully emphasized in former papers, be observed, these risks, I believe, will be reduced to a minimum. Most of the fatal cases that have occurred, have been due to a neglect of these precautions.

In my own experience, in over 500 cases, there have been only three deaths, a mortality not to be considered when dealing with hopeless inoperable cases.

In the majority of the fatal cases thus far observed death was apparently due to an embolism. This was the cause in two of my own cases and in both instances the general condition of the patients was extremely bad; there was generalization of the disease and very marked involvement of the mediastinal glands. In both cases the patients had only very small doses of the toxins which were not pushed to the point of giving any marked reactions.

Most of the deaths in the hands of other men have been due, I believe, to too large an initial dose given directly into a vascular primary growth. In recent years I no longer inject the initial dose directly into a tumor, but first test

Digitized by Google

the individual susceptibility of the patient by systemic injections in the buttocks or pectoral region; after a few such injections local treatment may be begun, always starting with a minimum dose. I rarely give more than 1-6 m. m. into the tumor in children, especially if situated in the neck or mediastinum, and never more than 1-4 m. m. in adults. In my youngest case, sarcoma of clavicle, in an infant one month old, I began with minim 1-10 and minim 1-8 produced a temperature of 102 1-2 degrees Fahrenheit. I have seen a temperature of 105 degrees result from 1-5 m. m. injected into a large cervical tumor in a child. In one of the fatal cases in the hands of other men, death resulted from an injection of 1-4 m. m. of Dr. Tracy's early preparation (twice as strong as at present) directly into a very vascular mediastinal tumor. This was an elderly woman of very feeble vitality.

Another case, recently brought to my notice by the physician in charge, contains an important lesson, *i e.*, that the toxins should never be administered by any physician who is not willing to give sufficient time—I will not say, to thoroughly read all that I have written about the treatment, but at least the directions upon the bottle. In this case the initial dose was 5 m. m., injected into a vascular tumor. The physician stated that he had turned the case over to his assistant, who gave him 5 m. m., and the patient died in fifteen minutes. Death might also have resulted had he given him twenty grains of morphine, though perhaps not so quickly. The toxins are, indeed, like strychnine and morphine, safe if judiciously and intelligently administered, but exceedingly dangerous if given in the way described.

I have known of another instance, a case of sarcoma of the lower jaw, in which—after two operations had been performed and it was not thought that the disease had been entirely removed—the toxins were advised immediately after operation. In this case also, the treatment was turned over to an assistant. Although never within the last fifteen years have the directions sent out with the toxins called for larger initial doses than 1-4 or 1-2 m. m.,

Digitized by Google

the assistant in this instance proceeded to give 20 m. m. as a first dose. This was some years ago when the preparation was considerably weaker than at present, at least, its strength was more variable. Although the patient went into coma and remained comatose and delirious for some time, she continued to take the toxins for two years, finally recovered and is well now, three years afterward, the tumor of the jaw having been cured.

In a few other cases, however, in which death resulted, the ordinary precautions had apparently been carried out. One such case was seen by myself in consultation, and the treatment advised, and a general outline of the dosage given. This was a woman 55 years of age, with a very large vascular sarcoma of the ilium. Her general vitality was much impaired and circulation not good. The toxins were begun in minute doses, 1-4 m. m., and gradually increased up to the point of reaching a temperature of 103-4 degrees. After about two weeks' treatment an injection of 12 m. m. caused a severe chill, the patient became very weak and exhausted and did not recover.

In this case, had I had personal charge of it, I have no doubt that, seeing that she did not bear the toxins well and that the temperature remained high, I should not have increased the dose as rapidly as was done.

Each case must be treated on its individual merits. In one case death resulted from increasing materially a dose which, the day before, had already produced a severe reaction, the patient still having a temperature of 102 degrees at the time the injection was given. It is a very good rule not to repeat injections as long as the patient has any material rise of temperature, but to wait until the latter has fallen to normal or nearly normal. After the desired reaction is obtained, causing a temperature of 102-3-4 degrees, according to the vitality of the patient, one should not increase the dosage until it has failed to produce such reaction.

Digitized by Google

I have had another death from the toxins in October, 1909. This case shows that the use of the toxins in the very aged, with advanced arteriosclerosis, is attended with more than ordinary risk.

This patient, a man 84 years of age, was suffering from an inoperable sarcoma of the parotid gland. His pains were very severe and it was decided to try the toxins. The first week the injections were given systemically, into the pectoral region. The filtered preparation was used and the dose was gradually increased from one-half to two minims without any reaction. I then gave the first dose into the parotid tumor direct, using 1-2 m. m. of the filtered or weaker solution (equal to about 1-4 m. m. of the unfiltered). He had a fairly severe chill, lasting for half an hour, followed by a temperature of 102 degrees. A few hours later he developed symptoms of cerebral hemorrhage and later, spinal paraplegia. He died at the end of seventy-two hours.

The moderate reaction in this case had evidently so increased the arterial pressure, that the weakened blood vessels gave way, producing the fatal hemorrhage. In this case I made the mistake of increasing the dose too rapidly.

I have never known of a fatality from the use of the toxins as a prophylactic after operation nor of any dangerous symptoms.

The following recent cases have not yet been reported:

Sarcoma of the Neck.

Small round-celled sarcoma of the neck. Partial removal by operation. Mixed toxins of erysipelas and bacillus prodigiosus given after operation. Entire disappearance. Patient well ten months later. (Unpublished.)

P. K., 41, male. Family history, good; heavy smoker. First noticed a lump in the submaxillary region in April, 1909; this grew rapidly and by June had reached the size of a hen's egg. His family physician, Dr. Lipsett, at first

Digitized by Google

regarded the trouble as an infiltrated gland and treated it with poultices for two weeks, and later lanced it, but only blood was found.

On June 11, 1909, the patient was admitted to the Roosevelt Hospital to the service of Dr. Peck, who stated that he found a very vascular tumor which had invaded the periosteum of the lower jaw, and there was marked infiltration of the muscles and skin. Dr. Peck could not make a complete removal and gave a hopeless prognosis. A microscopial examination was made by Dr. Hodenpyl, the pathologist of the hospital, and he pronounced it small, round-celled sarcoma, highly malignant. The patient was referred to me a few weeks after operation for the toxin treatment. The treatment was carried out by Dr. Lipsett, the family physician, under my direction. He was given four injections a week at first; later, twice a week and then once a week and during the last two months once in two weeks. Total number of injections, 56.

Result: Shortly after the treatment was begun, the infiltrated area in the region of the cicatrix gradually softened and receded and at the end of three months had entirely disappeared.

The patient has remained well up to the present time, twelve months after operation, there is no trace whatever of any disease, and he is in perfect general health. This patient was shown before the New York Surgical Society, April, 1910. Patient in perfect health June, 1910.

Inoperable Recurrent Malignant Tumor of the Uterus. (*Leiomyoma.*)

Unpublished.

Miss X., aged 42 years; referred to me September, 1907, by Dr. Edw. Reynolds of Boston, as an inoperable recurrent malignant tumor of the uterus. Hysterectomy had been performed by Dr. Homer Gage, of Worcester, in

Digitized by Google

February, 1907. In September she consulted Dr. Reynolds of Boston, who recommended the toxins. The tumor was examined by Dr. Mallory of Boston, who pronounced it a leiomyoma, supposedly benign. After six months there was a recurrence and when I first examined the patient there was present a large infiltrating tumor, filling up the whole pelvis and pressing upon the bladder wall, causing frequent micturition and very severe pain in the bladder; she also suffered very constant severe pain in the abdomen and back; she lost considerably in weight and her general health was greatly impaired. Clinically, the tumor felt harder than sarcoma, and almost exactly like carcinoma. I gave a very gloomy prognosis, but believed it worth while trying the toxins, expecting little more than temporary relief. The toxins were begun by myself and continued by her family physician, Dr. Leonard Wheeler, of Worcester, Mass. Marked improvement was noted within two or three weeks, as shown both by cessation of pain, softening and decrease in the size of the tumor and improvement in general health. She soon regained her normal health, and the pains entirely disappeared. The toxins have been kept up with occasional intervals of rest for the entire period, now more than two years. At the time of my last examination, May, 1910, I found only very small traces of the original tumor remaining, and what is left, is much softer. She has regained her normal weight, and states that she has never felt better than at present. The toxins have been given only in small doses, the highest having been not more than five minims, only sufficient to produce in most cases slight malaise and a temperature of 99 to 100 degrees three times a week. During the last year the injections have been given by a nurse. Examination July 25, 1910, shows no evidence of the tumor remaining. She weighs more than she has ever weighed and her general health is perfect.

Digitized by Google

Recurrent Sarcoma of the Uterus.

(Case of Dr. Howe, Hartford, Ct.) Mrs. McM., 50 years of age; referred to me by Dr. Howe, of Hartford, in April, 1908. Had been operated upon at the Hartford Hospital a year before for a large tumor, pronounced by Dr. Steiner, the pathologist to the hospital, a sarcoma. The tumor recurred and the patient was sent to me as a totally inoperable case. Examination at this time showed the whole pelvis filled with an infiltrating tumor which was so hard that, clinically, it resembled carcinoma, rather than sarcoma. Her general health had markedly failed and bladder symptoms had developed. I gave a very gloomy prognosis and told Dr. Howe that all that could be expected was to hold the disease temporarily in check. The toxins were begun on April 7 and continued for four weeks by Dr. Howe. The patient's general health soon began to improve and the tumor steadily diminished in size until August, when the treatment was stopped for two weeks. Immediately the severe pains returned and Dr. Howe resumed the toxins giving the injections every other day through September; then twice a week, then once a week, and finally, once in ten days. In a letter from the patient, dated December 14, 1908, the patient states, "I am so well that I can hardly believe that I am myself; I cannot remember ever being so well, and on all sides people are congratulating me on my looks," etc. On April 28, 1910, she again writes: "Dr. Howe examined me last week and found no indication of the return of the cancer. It is now nearly a year since I gave up the toxins."

Sarcoma of the Rectum.

T. A., 60 years of age; admitted to the General Memorial Hospital in July, 1908, with a tumor of the rectum which had been diagnosticated as inoperable carcinoma by a prominent surgeon in another city and colostomy had been

Digitized by Google

advised. I believed it possible to remove the tumor from below and in July, 1908, with the assistance of Downes, the lower end of the rectum was excised. The patient made a good recovery and soon regained complete control of the bowels. The tumor proved to be not carcinoma, but round-celled sarcoma. The patient was put upon the mixed toxins soon after the wound had healed and the treatment was continued in small doses, causing but slight reactions for six weeks. He remained perfectly well nearly two years, until the latter part of May, 1910, when he came to me with a small, movable tumor in the left pectoral region and several soft, enlarged glands in the right inguinal region. These tumors were removed in the early part of June. Microscopial examination showed them to be also round-celled sarcoma. General health perfect; he has again been put upon the mixed toxins which will be given in larger doses and continued for a longer period this time.

The following is a brief abstract of some of the more recent successful cases of other surgeons with the toxins:

Round-Celled Sarcoma of Nose.

(Dr. S. H. Large's case, Cleveland.) Growth apparently removed *in toto* early in August, 1907. It started from the periosteum covering basilar process of occipital bone. In three months the patient returned with a recurrence, the tumor being larger than ever and having invaded the soft parts of the nose. A second, more extensive operation was performed, followed two weeks later by the mixed toxin treatment. Two months after operation, a small growth, the size of a marble, was noticed in the old pharynx scar. The toxins were then injected directly into this growth every third day, the doses being gradually carried up to 7 m. m., with the result that the tumor entirely disappeared. On June 9, 1910, a small growth sprang from lateral wall of pharynx. This was removed and the path-

Digitized by Google

ologist reported it sarcoma. In this case the toxins have been given since 1907 and Dr. Large has advised continuing the same until all danger of recurrence has passed. He hopes for a favorable outcome.

Melanotic Sarcoma of the Retina Recurrent in the Orbit.

(Dr. T. S. McDermott's case, New Haven, Conn.) Operation for melanotic sarcoma of retina, December, 1904, at Boston City Hospital, the eye being enucleated. She remained in good health until November, 1906, when a small growth was noticed in the scar of the orbit. Removal of tumor, size of a cornea, November 21, 1906, by Dr. McDermott, who states he could not go very far into healthy tissue on account of the situation. The mixed toxins were started on the twenty-fourth of November, the injections being made every other day, into the temporal region, the highest dose reached being 6 m. m. on account of the severe reactions that always followed. The treatment was continued until March 27, 1907. Dr. McDermott saw the patient on April 27, 1910, and could not find any signs of a recurrence, more than three years afterward. I have never had a case of melanotic sarcoma either by operation or by toxin treatment, and this is, I believe, the first one on record.

Round and Spindle-Celled Sarcoma of Forearm.

(United States Naval Hospital Case, Chelsea, Mass.) Tumor involved fascia of the flexor muscles, extended to the interosseous membrane, involving the tissue more on ulnar than on radial side. Toxins begun under my direction August 1, 1908, and continued for several months. The tumor entirely disappeared and the patient was well, one and one-half years later, when last heard from.

Digitized by Google

Sarcoma of Chest at Sternocostal Junction.

(Case of Dr. E. W. Barry of Whitinsville, Mass.) Operation in January, 1909, for supposed abscess of sternum, which proved to be sarcoma. Wound healed in four months; four weeks later tumor appeared at original site. Dr. E. G. Brackett, of Boston, saw the case in consultation and considered it entirely inoperable. Under the toxins the tumor disappeared and the patient is now entirely well and working as before.

Round-Celled Sarcoma of Testicle.

Operation by Dr. J. A. Wyeth in 1897; recurred in the other testicle a year later; operation strongly advised, but patient refused castration. Toxins given by Dr. Robinson of Danville, Va., for four months in large doses, producing severe reactions. Entire disappearance. Patient examined by myself and found in perfect health without any trace of the disease eight years later, and a letter from Dr. Robinson, in June, 1910, states that the patient is still well at present, thirteen years later.

Osteosarcoma of the Fourth Cervical Vertebra.

(Case of Dr. Frank H. Miketta[1], Concinnati, O.) Miss B., 16 years of age. In 1907, began to have pains in shoulders and posterior muscles of left upper arm, was treated for swollen glands of neck. In August, 1909, while swimming, sudden paraplegic symptoms from neck down. Patient was taken to Cincinnati. An X-ray taken revealed an osteosarcoma of the cervical vertebra, involvement of fourth cervical vertebra, encroaching upon the third and fifth. The mass was pressing directly upon the spinal cord. On October 10, 1909, Dr. Miketta started the mixed toxin

[1] The Lancet. Clinic, May 28, 1910.

Digitized by Google

treatment, giving 1-2 m. m. directly into the tumor. The dose was gradually increased until a marked reaction was obtained. The temperature never rose very high, only on four occasions going beyond 100, usually remaining around 99 degrees. Dr. Miketta states, "The peculiar malaise or weak spells and the chills seemed to be more important than the temperature and guided the increase of the serum." He states the improvement was so slow in the beginning, as to be almost discouraging, even after two months of constant treatment, but from December, 1909, improvement became more pronounced. While at the time the treatment was begun, the patient was unable to turn in bed, motion and power gradually returned in head and arm first, then in lower extremity until at the present time, April 10, 1910, the patient can perform every movement.

In this case all injections, with exception of the first three, were given systemically, in the arms. Total number of treatments, 50.

Periosteal Sarcoma of Femur, Lower Third.

(Case of Dr. G. M. Williamson, Grand Forks, N. D.) Patient had been seen by Drs. Mayo, at Rochester, who refused operation and advised the mixed toxins; then came under the care of Dr. Williamson, who started the mixed toxins on April 22, 1909, continuing for some time. The patient improved and all the infiltration surrounding the bone disappeared. On April 13, 1910, Dr. Williamson writes that "Although there is still some enlargement of the femur, this has not increased since June, 1909; the patient has improved in physical condition, weighs more now than ever in his life and seems in perfect health. I believe he is cured."

Inoperable Small Round-Celled Sarcoma of the Abdominal Wall.

(Case of Dr. W. E. Green, Little Rock, Ark. *American Journal of Homeopathy,* December, 1907.) Male, aged

Digitized by Google

20, first noticed tumor in November, 1906. Seen by Dr. Green on December 25, same year. At this time the tumor extended from the symphysis pubis to the umbilicus and was fully as broad as a man's hand. The walls were much thickened and hard. An exploratory operation was performed on December 28 and a small piece of the growth excised for histological examination. This was made by Dr. M. D. Ogden, who pronounced the growth small round-celled sarcoma. As the case was wholly inoperable, Dr. Green put the patient upon the mixed toxins, the dose of which was gradually increased from 1-2 to 15 minims. He received sixty injections in all and by June 1, 1907, no trace of the tumor could be felt. Patient had gained forty pounds in weight and appeared to be in perfect health. Patient still well when last seen, April 30, 1910.

Dr. Green has had two other complete successes in inoperable sarcoma of the neck, diagnosis confirmed by microscopical examination.

Osteosarcoma of Ilium.

(Dr. M. E. Gowland's case, Milton, Ont., Canada.) Male, 37 years of age, in October, 1907, came under the care of Dr. Gowland for an osteosarcoma of the ilium the size of two fists, and of rather rapid growth; had been treated for sciatica. Dr. Gowland had an X-ray taken and Dr. Stuart of Guelph, Dr. I. H. Cameron of Toronto, and Dr. Cummings of Toronto, all saw the case and advised the mixed toxins as the only aid in sight. The toxins were begun end of November, 1907, and continued until the middle of March, 1908, with an interval of rest of three weeks, owing to Dr. Gowland's own illness. The treatment produced rather severe reactions, the temperature rising to 105 degress at times, but the patient would always feel better the next day. At first he lost in weight, but after four weeks began to gain flesh, and in April, 1908, weighed 175 pounds, which was a gain of about twenty pounds. The tumor

Digitized by Google

gradually diminished in size and the patient felt as well as ever. In February, 1909, Dr. Gowland wrote me that he had examined the patient and found him in good condition, although there was still considerable thickening of the bone. This, however, did not inconvenience the patient in the least who had been doing heavy farm work right along. In May, 1910, Dr. Gowland writes, "The patient is able to attend to his work and states he feels as well as ever; weight, normal; practically no pain after hard work; condition very satisfactory."

Dr. J. D. Griffith, Kansas City, Mo., in a private communication dated April 12, 1910, states that he has had five recoveries out of thirty cases of sarcoma treated with the mixed toxins. Four of the successful cases were inoperable sarcomas of the neck; the fifth, a humerus case, and all have remained well beyond the three-year limit. He states that all cases were under twenty years of age.

Dr. F. L. Tosier, Washburne, Me., (*Vermont Medical Monthly*, September, 1909), reports two cases in which the mixed toxins were used with success.

Case 1. A woman of 22, entered the Lewiston City Hospital in December, 1908, with a rapidly growing ovarian tumor, causing her great pain. On preparing the patient for operation, the condition was found so complicated that it was decided to postpone the operation until a microscopical examination could be made of a section of the growth. The pathologist examined the tissue in frozen section while the patient was on the table and pronounced the growth spindle-celled sarcoma. The tumor was firmly attached to broad ligament, ovary, uterus and intestine. Fearing hemorrhage, the incision was closed and the patient sent home to live only a short time. Dr. Tosier then began the mixed toxins in doses of from 1-2 m. m. to 10 m. m., obtaining good reactions, a temperature of 100 to 103 degrees and a pulse of 100 to 120.

At the time of the report, seven months later, the patient

Digitized by Google

was still well, periods had been normal and regular; she had gained nearly sixty pounds in weight and there had been no return of the symptoms.

Case 2. Female, aged 71 years, with pronounced family history of malignant disease, suffered from a growth in the right axilla of nine months' duration. Thinking the patient could live but a short time, she was put upon opiates. A little later the mixed toxins were tried. The pain grew less almost immediately, the growth became soft and began to discharge freely. This gradually subsided and the lesion healed. For three months the injections were given daily in doses up to 15 m. m. Since then the injections have been given less frequently. At the time of the report, her appetite was very good, she slept well and stated that she felt better than she had for five years.

SARCOMA OF CHEEK, ARISING FROM IRRITATION OF A MOLE.

(Case of Dr. Clark Stewart, Minneapolis.) Mrs. C. T. H. Partial removal by Dr. Stewart on June 28, 1909. Mixed toxins begun a week after operation and continued for six months in gradually increasing doses up to 12 m. m., all injections being given systemically; she took thirty-two injections in all. I saw the patient on May 23, 1910, in perfect health.

P. Lageux (*Le Bulletin Médical de Quebec,* June, 1909) reports two cases, one of sarcoma and one of carcinoma of the breast, successfully treated by the "Coley serum."

Case 1. Mme. T., 61 years of age, operated upon in 1906 for a tumor of the abdominal wall and of the breast (true cauliflower growth). In 1907 she developed a recurrence in the opposite breast with involvement of the axillary glands. She was again operated upon, but the pain persisted and nodules began to appear in the cicatrix, which grew rapidly. As the patient refused further operation, she was put upon the mixed toxins as the only alternative left. The injections were started April 21. Dr. Lageux

Digitized by Google

states that the pain promptly subsided and at the end of a month the nodules had entirely disappeared. The treatment was continued until September.

Examination June 25, 1909, more than two years after the treatment was begun, showed the patient entirely well.

Case 2. Mme. C., 50 years of age, was operated upon in the month of August, 1908, for cancer of the left breast with axillary involvement of four years' standing. She was admitted to the hospital at Levis on the 29th of May, 1909, with a recurrence in the cicatrix and an enormously œdematous arm; there was a cancerous mass in the right breast the size of a duck's egg, nipple retracted and offensive oozing from the right nipple; general health bad. The injections with the mixed toxins were begun on the nineteenth of June with the result that the recurrence in the cicatrix disappeared, the swelling in the arm began to subside, all pain left her and the tumor in the right breast became reduced to half its former size. She then returned home to have the treatment continued by her local physician.

Lageux adds: "The remarkable feature in the treatment was, that in both cases the pain entirely disappeared almost immediately after the first injection. My experience has shown me that it is not necessary to lose time by giving small doses, but that the more quickly we reach a temperature reaction, the more often we have success."

With this statement I do not wholly agree for this reason, that it is dangerous to begin with too large doses or to increase the dose too rapidly.

The report of a case of "Disappearance of a Tumor (Sarcoma?) Following Injections of Coley's Fluid" by Wallace C. G. Ashdowne, surgeon to the Metropolitan Hospital, Kingsland Road, N. E., is given in the *Lancet,* May 22, 1909. The case is briefly, as follows:

Married woman, 45 years of age, was admitted to the hospital April 23, 1908, with a fusiform swelling of right arm,

Digitized by Google

lower part of right humerus. The skiagram showed marked changes in the structure and outline of the bone and suggested to most of those who saw it the presence of a new growth.

To exclude the possibility of a syphilitic origin, mercury and potassium iodide in increasing doses were given for ten days, but as the swelling continued to increase in size the treatment was abandoned, and an exploratory operation, if necessary, to be followed by amputation, was advised, but refused. Thereupon the mixed toxins were begun in doses ranging from one-half to nine minims, twenty-three in all being given. The first injections were made into the arm away from the growth, later directly into it. The treatment was followed by considerable malaise, headache, nausea and vomiting, but only slight rise of temperature and pulse. By the middle of August the swelling had almost entirely disappeared and the structure and outline of the bone had resumed its normal appearance. A skiagram taken February 1, 1909, showed the improvement to have been maintained.

Hertel of Copenhagen, Denmark (*Hospitalstidende*, April 7, 1909), in a paper upon "The Treatment of Sarcomata with Coley's Fluid" reports two cases treated with the mixed toxins of erysipelas and bacillus prodigiosus. He states that the outcome is highly encouraging for the utilization of these injections in suitable cases. According to his observations, the toxins exert an influence not only up soft sarcomata, but may also be efficient in the sarcomata of the bones, so that a number of mutilating operations may perhaps be avoided. He will feel obliged in future to employ Coley's fluid in all sarcoma cases which may come under his treatment, even when he feels certain of having removed all sarcomatous tissue in a radical operation.

Case 1. Male, 29 years of age, upon whom castration had been done at the hospital in 1904, for sarcoma of tes-

Digitized by Google

ticle. A recurrence was observed a year later in the inguinal glands, which were then extirpated. Two years later there again was an extensive recurrence in the same region and a third operation was advised, although the danger and possible uselessness of such procedure were fully appreciated. Lennander's operation was performed and, in the course of the same, infiltrated glands were seen to extend upwards along the iliac vessels, and some of these had to be left behind as they could not be reached. The expected femoral thrombosis did not occur and the wound healed within a month after operation.

In the hope of perhaps influencing the sarcomatous tissue that had been left behind, Hertel, in January, 1908, began the use of the mixed toxins in doses of from three to twenty ctgrs. On March 20, the patient was discharged well and at the time of the report, November, 1908, was presented before the Koege Medical Society in good condition, without a trace of recurrence.

Hertel's second case reported was that of a man 39 years of age, in whom, likewise, the testicle had been removed for sarcoma. A few months later there was a large recurrence in the abdomen, which seemed inoperable. The toxins were begun at once with the result that the nodules became softer and more fluctuating, although the size of the abdomen did not diminish. He grew constantly weaker, developed ileus and died. Autopsy showed a single large retroperitoneal cyst. Hertel states, if this diagnosis could have been rendered during life, the cyst might have been emptied through a lumbar puncture and the remaining cyst wall could have perhaps been made to disappear through continued treatment with the toxins. There was no trace of recurrence elsewhere.

Case 3. A man of 42 who, about one and one-half years ago, began to have severe pain in the region of the gallbladder. Six months ago paræsthesia and spastic paresis ap-

Digitized by Google

peared in the legs. Diagnosis was doubtful, but by exclusion became most in favor of malignant tumor which, through its increase in size, gave rise to compression phenomena. As the author at that time had not made up his mind to perform laminectomy to look for the tumor, he began the toxin treatment which was continued for about a month with little apparent effect. Laminectomy was then performed. The dura was incised and an oblong, red-colored tumor 1 1-2 x 1 cm. in size was seen to lie upon the left posterior column between seventh and eighth vertebræ, solidly attached, necessitating careful incision of the pia, before removal was possible.

Dr. Gregersen, the pathologist, found the tumor to resemble a fibroma more than anything else, but when Dr. Hertel suggested that it might have been a sarcoma which, through the toxin treatment had become changed, he thought this might well be, since the pathologico-anatomical findings had very strikingly reminded him of what he had read in descriptions of sarcoma remnants which had been treated with Coley's fluid.

Inoperable Sarcoma of the Abdominal Wall Successfully Treated with the Mixed Toxins. Patient Well More than Two Years Afterwards.

(Case of Major C. G. Spencer of the Royal Army Medical Corps. Trans. of the Royal Society of Medicine, 1909, and Journal of the Royal Army Medical Corps 12, 1909, 449.) Male, 33 years of age, was admitted to the hospital at Belfast, July 21, 1906. Examination showed a hard tumor in the lower portion of the abdomen; it extended from the pubic bone upwards to one and one-half inches of the umbilicus, three inches broad; firmly attached to the bone, but evidently originated in the abdominal wall. September 5, 1906, an exploratory examination was performed and a portion of the tumor removed for microscopical examination, which showed it to be a spindle-celled sarcoma. An

Digitized by Google

unsuccessful attempt at removal was made a week later. On September 22 the toxins were begun and given every other day, twelve injections in all and 3 m. m. being the highest dose. The treatment was then discontinued as there had been no appreciable improvement and the patient's general condition was greatly impaired. On his return from a two months' furlough, striking improvement was apparent; he had gained fifteen pounds in weight, and was again able to walk and take exercise without discomfort. The tumor was distinctly smaller and softer. A second course of toxin treatment was begun December 16, 1906 and continued until January 11, 1907, fifteen doses ranging from 1 to 6 m. m., being given. His general condition again deteriorated and on January 21 he was sent on a month's furlough with the same favorable result as before. He was subjected to a third series of injections of 6 m. m. each from February 23 to March 28, and discharged from the hospital on April 3, when the tumor had entirely disappeared, but a mass could still be palpated per rectum. At the time of the report of the case by Dr. Spencer nearly two years had elapsed since the cessation of the treatment and the patient had continued in excellent health.

ROUND-CELL SARCOMA OF THE TONSIL WITH VERY EXTENSIVE INOPERABLE METASTASIS IN GLANDS OF NECK.

(Crile, Stanton and McMullen, unpublished.) Through the kindness of Drs. Stanton and McMullen, I have the privilege of giving abstracts of the following case, which will later be published by them in detail:

Mr. W., aged 35 years, a patient of Drs. McMullen and Stanton, Schenectady, N. Y., noticed a swelling of left tonsil late in November, 1909. A few weeks later he noticed an enlargement of the glands of the neck on the left side. The tumor grew with great rapidity, and in February, 1910, the growths were so extensive that patient was sent

Digitized by Google

to Dr. George W. Crile for operation, if he considered it operable. Dr. Crile found a tumor nearly blocking up the pharynx, and the neck tumor so large that he did not believe it possible to do a radical operation, and at once put the patient upon the mixed toxins, (Coley), prepared by Dr. Tracy, of the Huntington Cancer Research Fund. The patient was emaciated and in very bad general condition at the time the treatment was begun. At the end of two weeks there was a marked decrease in the size of the tumors. The patient's general condition was worse. At the end of five weeks the tumors had nearly disappeared, and the patient was sent home and the treatment continued by Drs. McMullen and Stanton. At present, August 3, 1910, he is getting one dose of 16 minims every three weeks. I examined the patient August 4, 1910. He is in perfect health and normal weight, and there is no trace of new growth, or swelling of any kind, in the neck or tonsil.

It is, of course, too early to call this a cure, but the fact that a totally inoperable and an absolutely hopeless malignant tumor of the tonsil, with extensive glandular metastasis in the neck, entirely disappeared under systemic injections of the mixed toxins, without other treatment, and the patient fully recovered his health, makes it a valuable case. All of the injections were made in the pectoral region.

A microscopic examination was made by four pathologists, including Dr. Crile, and the diagnosis of sarcoma was confirmed by all.

After a critical review of the treatment of inoperable sarcoma by erysipelas and prodigiosus toxins, Leo Loeb in a paper read before the Section on Pharmacology and Therapeutics of the American Medical Association, June, 1909, concludes as follows;

"It is therefore likely that the treatment of inoperable sarcoma with the toxins of streptococcus and *bacillus pro-*

Digitized by Google

digiosus leads to a cure in approximately 4 to 9 per cent. of cases. And some results obtained so far, suggest that this method of treatment may prove of value as a postoperative procedure in diminishing the number of recurrences, and that in a certain number of cases it might limit the necessity for amputation of the limb in cases of sarcoma of the long bones. As to its mode of action, nothing definite can be stated, but it is likely that the toxins themselves, as well as the local and general reactions they produce, frequently affect the life of the sarcoma cells unfavorably. (Journal American Medical Association, January 22, 1910.)

Hodgkin's Disease.

The mixed toxins have been used in a very small number of cases of Hodgkin's Disease, with very marked inhibitory action in several of these cases and complete disappearance in two.

While there is still considerable divergence of opinion as to the nature of Hodgkin's disease, I believe, with many others, that it is a type of sarcoma. At any rate, the action of the toxins upon this disease is similar to that upon sarcoma. The two cases in which the disease entirely disappeared under the use of the toxins, without any other treatment are, briefly, as follows:

Case 1. (Personal case.) G. K., male, 24 years of age. First noticed enlargement on right side of neck in the fall of 1906. Patient entered the General Memorial Hospital, October 10, 1907. Examination at this time showed a tumor occupying the whole right cervical region from the mastoid to the clavicle and from the median line in front to nearly the median line behind; a similar enlargement of the glands of the axillæ and groins. The spleen was greatly enlarged, extending up to about two inches below the costal arch; liver slightly enlarged. The patient was put upon the mixed toxins of erysipelas and bacillus prodigiosus; only systemic injections into the pectoral regions were

Digitized by Google

given, the initial dose being 1-4 m. m., which was gradually increased to 1 1-2 m. m., which latter dose produced a temperature of 105.6 degrees. On November 15, slightly over one month from the time of his admission to the hospital, all tumors had practically disappeared; only a few minute nodules could be felt in the right side of the neck, and these had entirely disappeared by November 20. He received nineteen injections in all. He refused further treatment. A little over six months later the disease recurred and proved fatal within another six months.

In this case the diagnosis was clinically confirmed by Dr. W. K. Draper and microscopical examination was made by Drs. W. C. Clark, pathologist of the hospital, and James E. Ewing, professor of pathology at Cornell University Medical School. Both pronounced it unquestionably Hodgkin's disease.

Case 2. This patient was treated by Dr. C. E. Preston of Ottawa, Can., one of my former house surgeons.

G. M., 19 years of age, was admitted to the Ottawa Hospital, May 4, 1908, with a history of glandular swelling beginning on one side of the neck and later involving both sides, of about one year's duration. There was gradual loss of weight and increasing anæmia. The glands of the neck were greatly enlarged; the spleen was enlarged and palpable three-fourths of an inch below the margin of the ribs; the liver extended three inches below the border of the ribs; inguinal glands were moderately enlarged. Weight, 122 pounds. The mixed toxins were begun June 1, the initial dose being 1-4 m. m. This was gradually increased until July 10, the maximum dose of 12 m. m. was reached. This caused a temperature of 103 degrees and a rather severe chill. The treatment was continued for about five months, partly by the family physician. Examination on January 1, 1909, showed the patient quite well, weight 145 pounds, with only a small gland in the right side of the neck. He had returned to his usual work. The tox-

Digitized by Google

ins were discontinued. Re-examination on September 10, 1909, by the family physician shows the patient in fine condition, all the glands have disappeared and he continues his hard work. In a recent letter dated June 10, 1910, or two years since the beginning of the treatment, Dr. Preston states that the patient is still in perfect condition. The diagnosis of Hodgkin's disease was made by all of the attending physicians and surgeons of the hospital and a hopeless prognosis was given.

In my own case I believe that if the toxins had been continued for five months, as in the latter case, possibly a more permanent result might have been obtained.

With regard to Case 2, it would not be fair to consider this patient cured. It is quite possible that he will have a recurrence, but inasmuch as there is no complete cure of a well-marked case of Hodgkin's disease on record from any form of treatment, these two cases are worthy of more than passing interest.

I desire to once more emphatically correct an impression that has never had the slightest foundation, either in my writings or practice, namely, that I have advised the toxins as a substitute for operation in the treatment of sarcoma or carcinoma. I have from the beginning limited it to inoperable tumors, and practically to inoperable sarcoma, and have advised and practiced surgical operations in all operable cases. It was not until years after I had observed many cases of inoperable sarcoma, and a considerable number of sarcomas of the long bones, successfully treated with the toxins, that I ventured to propose the preliminary use of the toxins for a very short time—not over two weeks—in cases of sarcoma of the long bones, in which an operation meant amputation and sacrifice of the limb.

The results of the cases treated in this manner showing at least fifteen cases in which the limb as well as the life of the patient has been saved by the preliminary use of the toxins, seem to justify my position.

Digitized by Google

A still further enlargement of the field of usefulness of the toxins has been found in their employment as a routine measure after all primary operations for sarcoma. The only way in which use of the toxins could interfere with surgery in these cases would be by preventing a recurrence, thus making further operation unnecessary.

This plan of procedure has now been adopted by many of the leading surgeons, and while it will take many years to obtain sufficient data to give an exact estimate of its value, enough data are already at hand to prove that a very material reduction in the number of recurrences has taken place.

Final Results.

Up to the present time I have had fifty-six cases of inoperable sarcoma successfully treated with the mixed toxins of erysipelas and bacillus prodigiosus. Of these thirty-five have remained well from three to sixteen years; twenty-eight from five to sixteen years, and fourteen from ten to sixteen years.

In the first thirty-six cases reported in 1906 (*American Journal Medical Sciences,* March, 1906) there was, in addition to the tumors being adjudged inoperable by leading surgeons, a careful microscopical diagnosis made in all but two instances. One of these cases was a large tumor of the sacrum, pronounced sarcoma and inoperable by the attending physicians and surgeons of St. Luke's Hospital of New York. The patient had lost forty pounds in weight and could not walk without assistance. The tumor entirely disappeared under two months' treatment with the mixed toxins, and in three months he had regained his normal weight and resumed his work. He is well at the present time, fourteen years later. The other case was a large inoperable tumor of the right iliac fossa, highly vascular, pronounced sarcoma by Dr. G. R. Fowler of Brooklyn, after an exploratory laparotomy. The tumor disappeared under

Digitized by Google

the toxin treatment and the patient remained well for eight years, when he died of another disease.

The majority of these cases have been shown from time to time before the New York Surgical Society, one of them sixteen years after treatment. At the Hartford Medical Society two years ago I showed three cases, all residents of Hartford. One, an enormous recurrent sarcoma of the gluteal region, well fourteen years, had been pronounced inoperable by Dr. Charles McBurney when I began the treatment. The second case was a spindle-celled sarcoma of the breast and pectoral region, diagnosis confirmed by Dr. W. H. Welch of Johns Hopkins Medical School, treated under my direction at Hartford, well fourteen years. The third case was a round-celled sarcoma of the tonsil and larynx, with metastases in both cervical regions. Entire disappearance under six months' treatment; well at present, nearly three and one-half years afterward.

In my paper of April, 1906, American Journal of Medcal Sciences, I tabulated the successful cases of other men, sixty in number. Since that time, from personal communications and published reports, this number has greatly increased until now I believe that considerably more than 100 cases have been successfully treated by other surgeons.

Space will not permit me to give a detailed report of these cases. All of my own were given in brief and many in full in my paper published in the Transactions of the Royal Society of Medicine, November, 1907.

With the improved preparation of the mixed toxins within the last four years, due to Dr. Tracy's investigations, the results have been much better than 10 per cent. of cures, and the successful cases treated by other men, now upwards of 100 in number, have, likewise, been rapidly increasing.

The skepticism which, at first, was almost universal—and very naturally so—has gradually given way before the constantly increasing number of successful cases and the

Digitized by Google

longer period that has elapsed has established the permanency of the cures.

DISCUSSION.

GEORGE C. WILKINS, M. D., MANCHESTER.

I think you will agree with me that it has been a great pleasure to hear at first hand from Dr. Coley the history of his investigations. This matter has not been as thoroughly understood as it should be.

In the treatment of malignant neoplasms our first thought is some operative procedure, and justly so, because in the present state of our knowledge regarding these conditions, it has been found that extirpation of the growth, as early as possible in the disease, offers the greatest opportunity of cure. Unfortunately, however, there are many cases to which this method of treatment can not be applied, usually because the growth has advanced too far before coming under the observation, or because of its unfavorable situation. These constitute the inoperable cases. Whenever any method of treatment can be found that will permanently cure or even relieve a certain percentage of these inoperable cases, such a method of treatment is of distinct scientific value, and is decidedly a benefit to mankind. In the treatment of inoperable sarcoma, such a method has been demonstrated by Dr. Coley. From what we have heard today, I think no one of us can doubt but that in the use of the mixed toxins we have a remedy which, in a certain percentage of cases of sarcoma, offers a cure, or at least prolonged life, when otherwise we would be obliged to acknowledge failure. While many surgeons have reported no beneficial results from the use of the toxins, many others have reported cures, as Dr. Coley has told us to-day, and, as he suggests, these failures reported may have been due to imperfect trials and the improper administration of the fluid. Dr. Coley's percentage of cures,

Digitized by Google

with the exception of the one he quoted a few minutes ago, is higher than that of other surgeons, and this is reasonable because of his extended experience in the treatment of such cases. On account of the larger number which he has had under his observation, he, of course, has been able to more judiciously determine the dosage.

At the last session of the American Medical Association, in the section on pharmacology and therapeutics, Dr. Leo Loeb, of Philadelphia, reported statistics gleaned from numerous surgeons throughout this country who had used the toxins in the treatment of inoperable sarcoma and these absolutely unbiased statistics gave from 4 to 9 per cent. of cures. Such percentages as these in an inoperable malignant condition, demonstrate its distinct value.

I have had the pleasure of seeing a number of cases under treatment with Dr. Coley at the General Memorial and the Ruptured and Crippled hospitals in New York. I have treated three cases with the toxins, all of which were diagnosed pathologically. The first was a case of myxosarcoma. The patient refused operation. The toxins were administered and typical reactions were obtained, and I might say these reactions are certainly alarming at times, especially before one becomes familiar with them. The temperature, chills and malaise which go with it, at least the first time, alarm the family considerably. The growth in this case was inhibited for a few weeks, and then went on to fatal termination, although the toxins were continued. But there was a marked improvement in one way. Previously to the administration of the toxins the patient suffered a considerable amount of severe pain, and immediately upon the administration of the toxins, there was a very marked dimunition of it.

The second case entered the Elliott Hospital with metastasis, following a sarcoma of the forearm. The arm had been amputated through the humerus less than two months previously at a Boston hospital. On sending down there

Digitized by Google

to inquire, I found their diagnosis was osteosarcoma, whether round-celled or spindle-celled, I do not know. At the time of entrance there were large metastatic masses, one above the clavicle and another on the shoulder and another on the back of the head larger than a hen's egg and was, of course, inoperable. The toxins were given for over two weeks, and at first there was a slight reaction, but after that there was practically no reaction, although as much as thirty minims daily were administered. The growth continued to grow, and it was a very rapidly growing case; he developed new metastases rapidly, two or three on the ribs, and died several weeks later.

The third case was one of giant-cell sarcoma of the metacarpal of the thumb. This bone was excised at the hospital, and the patient is now having the toxins administered as a prophylactic against recurrence. As a prophylactic the toxins have an important use, especially in sarcoma of the long bones. From operative treatment alone, in these cases the results have been equally good where resection, excision or amputation through the same bone has been performed as when complete amputation has been done. This rather remarkable result depends on an important fact, and this should be borne in mind, that the danger of recurrence is not at the seat of operation, but by metastasis elsewhere, and the use of the toxins may prevent such metastasis.

Whether we consider Dr. Coley's percentage of cures in the treatment of sarcoma with the fluid, or whether we consider the four to nine per cent. which I mentioned previously, we are not doing our whole duty unless we give a patient afflicted with a sarcoma the opportunity of the benefit to be derived from the administration of a remedy so easily obtained, and a remedy that has definitely cured inoperable cases.

Dr. Coley should be heartily commended and congratulated for the persistence with which he has pursued his in-

Digitized by Google

vestigations and his work which has covered a period of about eighteen years and has been carried on in the face of very considerable criticism.

G. W. MCGREGOR, M. D., LITTLETON.

This is an unexpected call upon me. I have been interested in several of these cases, one of which I hoped to have brought down here to-day, that of a young woman thirty odd years of age. First, the patient noticed a little swelling upon the instep of the foot which merely gave inconvenience in walking, interfering with the comfortable wearing of her shoe. It had been some five years from its inception before it was examined, and my diagnosis was merely a lipoma, but it proved to be something entirely different from what we had anticipated. It was removed and a section sent to the laboratory at Hanover, where it was pronounced melanotic sarcoma. She seemed perfectly recovered from her operation. How the foot is at the present time I am not quite certain. I intended to have her down here to-day, but she had not regained her former health, though it caused her no trouble except possibly it was still a little sore and with occasional pain. At the time she left the hospital there was no evidence of any metastasis, and I think that is as her condition exists today.

Another case was one of a woman 60 years of age, whose family history was one of cancer and tuberculosis. She was in very delicate health. She had two enlargements upon the abdomen which interfered with her dressing and the wearing of dresses. She asked me if they could be removed without taking ether. I said, "Yes, I think they could." This was done in each instance, but they never healed. Following that she had as many as twelve to twenty metastases in the neck, abdomen, axilla and over scapula. I sent a section of these to the laboratory, and, rather to my surprise, it was pronounced lymphatic sarcoma. Possibly the so-called cancer history was sarcoma in the mother; the sister died of tuberculosis.

Digitized by Google

I am very much interested in this paper of Dr. Coley's, and I think I shall return and see if I cannot persuade this patient, possibly, if Dr. Coley thinks it advisable, to try the toxin treatment, because she tells me there is still a distinct swelling on the foot.

W. H. LEITH, M. D., LANCASTER.

Mr. President:

I think Dr. Coley will be interested in a case which has come to my knowledge in the practice of Dr. W. W. Ker, of Canaan, Vt., not far from my own field of effort.

To make sure of my recollections of this case, I telephoned to Dr. Ker before leaving home yesterday morning, and with his permission I report the case of a man forty-seven years of age, who presented a large tumor of one year's standing occupying the left iliac region. The tumor was sufficiently large to make considerable mechanical disturbance, both of rectum and bladder. The man's nutrition was impaired, and he was becoming cachetic. Dr. Williams, of Sherbrooke, was called in consultation, an exploratory incision was made but further operation was found to be impracticable, if not impossible. The tumor presented the microscopical appearance of a sarcoma and on examination of a section, taken by Dr. Williams, by a competent pathologist, it was pronounced round-cell sarcoma. Immediately after the exploratory incision, treatment by the mixed toxins of erysipelas and bacillus prodigiosus as advised by Dr. Coley was begun, and has been continued to the present date. The bunch has entirely disappeared together with all pressure symptoms; the nutrition of the patient has improved very materially and he appears to have made a complete recovery. The doctor still injects the serum in five minim doses about once a week. It is now six months since the first treatment.

Digitized by Google

IMMUNITY, WITH SPECIAL REFERENCE TO VACCINE THERAPY.

TIMOTHY LEARY, M. D., BOSTON.

It is my purpose to review hastily the progress of our studies in immunity in order to make plain why that portion of the scientific medical world which has been interested in the practical application of immune principles to disease conditions welcomed the work of Wright as opening up a new avenue of approach toward the elucidation of a problem whose solution seemed impossible from the viewpoints which were held at the moment when his work was presented.

The student of pathology learns early in his career that the morphological tissue response to insults is limited to a few fundamental possibilities. Details of the reaction may be infinitely varied but the basic variations are few, no matter what the character of the injury may be. Further, by artificial stimuli we have not succeeded in adding to the varieties of response which are exhibited against natural stimuli.

It seems to be equally true of immunizing responses to stimuli that the types of response are relatively few.

It should be made clear that the laboratory worker in immunity when he makes a step in progress does nothing new or strange. He invents nothing. He evolves no new principles. He studies nature and endeavors to wrest from her the secret of her methods of rendering harmless the parasitic organisms of their products which find themselves in the living animal body. Studies of immunity will be complete when we have laid bare all of these methods. The successful artificial method of attacking an infectious pro-

Digitized by Google

cess depends upon as close an imitation as possible of nature's method of accomplishing the same thing.

Practical progress in specific therapy of human infectious processes really began with the discovery of diphtheria antitoxin. First came the demonstration that the diphtheria bacillus produced a soluble toxin—that bouillon in which the diphtheria bacillus had been grown for several days had acquired a definite poisoning power for animals even after the diphtheria bacilli which produced the toxin had been filtered off; that a measurable quantity of this bouillon or diphtheria toxin, as it is called, would kill a guinea pig of a certain weight. Next came the discoverey that an animal into whose body less than a fatal dose had been injected developed after a time the power to overcome what would be a fatal dose for an untreated animal of its weight. The injection of the non-fatal dose of toxin had stimulated the formation of an antitoxin. This antitoxin, produced in various tissues, is delivered into the blood stream where it is found in the globulins of the blood serum. It was a simple, practical problem to produce this substance in quantity in large animals from whom large quantities of blood could be removed without harm and the serum or its globulins made use of to supply the deficiency in antitoxin production in human beings undergoing infection with the diphtheria bacillus, or even to prevent infection in those exposed, by surcharging their tissues with antitoxin and thus making the ground unfavorable for the diphtheria bacillus.

It should be noted that diphtheria antitoxin has no important direct influence on the diphtheria bacillus. It acts solely by neutralizing the toxins of the organism which, thus disarmed, fall an easy prey to other protective agencies.

The discovery of diphtheria antitoxin led to the hope that similar sera could be produced which would have as happy an influence on other infectious processes. It was

Digitized by Google

soon learned, however, that few other bacteria than the diphtheria bacillus produce a soluble toxin in quantity. A study of infection with the diphtheria bacillus shows it to be an almost pure toxemia. The bacteria are limited to the local lesions in the throat. Here they manufacture their toxins which are carried in the blood stream to all parts of the body, producing toxic degenerations of the so-called parenchymatous organs and the nerve trunks. The lesions which lead to death are thus produced largely at points distant from the region where the toxins are elaborated. The tetanus bacillus is the only other organism among the important pathogenic bacteria which produces mainly a soluble toxin and whose lesions largely arise at a distance from the bacteria, as in the case of diphtheria.

With the great group of other pathogenic bacteria the story is a distinctly different one. General processes when they arise, do so as a result of the invasion of the blood stream by the bacteria (*bacteremia*) and the organisms are carried to all parts of the body. The staphylococcus, streptococcus and pneumococcus, for example, depend for their activity in great part not upon soluble toxins but upon toxins (*endotoxins*) which are limited to the bodies of the bacteria. The problem in these cases is not the simple one of neutralizing toxins, but the more complex one of destroying bacteria as well.

Investigation has shown that bacteria which enter the blood stream may be destroyed by substances present in the blood serum which produce a digestion—a solution (*bacteriolysis*)—of the organisms. This phenomenon depends upon the interaction of two substances. The first of these is a specific body—the so-called amboceptor—a distinct immune body which may be increased in quantity at will in susceptible animals, just as diphtheria antitoxin may be produced experimentally in quantity. If this body were capable alone of the destruction of bacteria our problem would be solved. Unfortunately, however, the actual

Digitized by Google

destruction of bacteria (*bacteriolysis*) is dependent upon the interaction with it of a second body—the ferment which completes the solution of the bacterial cells, and which is known as complement. Complement is an unstable body, with little resistance to heat, and disappears rapidly from blood serum which is kept. It is present in the blood serum of all living animals, although its quantity may show marked variations. A slight disturbance, such as a headache, may diminish its quantity markedly and we have discovered as yet no means of increasing the amount normally present to any considerable degree. Hygienic living, with abundant fresh air and good food will keep its measure at a high par, but even under these conditions slightly untoward circumstances will rapidly lower the amount.

The individual who is undergoing infection with the typhoid bacillus, for example, is producing sufficient amboceptor for his needs. What his blood lacks is complement and we as yet have no means of artificially supplying this need. Antisera rich in amboceptor may be readily produced, but the real need of the infected individual—complement—we cannot provide for.

For these reasons the so-called antibacterial or bacteriolytic sera are, as a whole, failures. An apparent brilliant exception—Flexner's antimeningococcic serum—belongs in a class by itself because of the character of the meningococcus. This organism is one of a group of bacteria which undergo solution readily, probably even in the absence of complement. Rosenow has shown and our experience has confirmed this, that the group of organisms to which the meningococcus belongs will undergo solution in any normal serum, even in a serum which has little bacteriolytic influence on other bacteria, and sometimes solution of the bacterial bodies will occur in physiological salt solution. A specific serum against this organism belongs, therefore, in a special class and does not seriously modify the statement that bacteriolytic sera, as a whole, are failures.

Digitized by Google

Another method of dealing with infection was suggested by Metchnikoff's observation that the animal body protected itself in part against the invasion of pathogenic bacteria by means of active cell processes. He observed that in the lower animals certain infections were held in check or overcome by the action of motile cells which took the invading bacteria into their bodies and destroyed them by a process of intracellular digestion (phagocytosis). The most active phagocytic cell in the human body is the polynuclear leucocyte. It was shown that the number of leucocytes in the circulating blood could be increased by the use of preparations containing nucleic acid. Substances such as yeast, rich in nucleins, were therefore used as a means of combatting infection but without marked influence on the processes.

Thus matters stood when A. E. Wright published his first practical results from bacterial vaccination. From 1892 to 1902 efforts in the direction of specific therapy had resulted in no signal advance. Our study of nature's methods had disclosed no new avenue of approach toward the solution of the problem and we could not imitate nature successfully along the old ones.

The new facts which Wright brought out were:—1. That the cellular destruction of bacteria (phagocytosis) does not depend solely on cell activity: that before bacteria are taken into the bodies of cells they must be acted upon by substances present in the blood serum (opsonins). White corpuscles washed free from serum are not attracted by bacteria with which they are brought in contact and will not, therefore, show phagocytic activity. The addition of a small amount of normal serum to the mixture of bacteria and washed white cells will be followed promptly by the familiar picture of phagocytosis.

2. That the injection of suspensions of dead or modified bacteria (bacterial vaccines) into infected individuals would provoke the formation of antibodies more or less

Digitized by Google

specific in character, against the bacteria used for making the suspensions. The use of suspensions of modified bacteria in the prophylaxis of disease has been practiced since the earliest years of bacteriology. The new step was the demonstration of their value in treatment of infections already established. The response to their injection is indicated not only by the formation of opsonins, but also by the production of other antibodies.

Wright's work has opened up a new world of possibilities in the struggle with infection. It is producing practical results in the treatment of infections which could not be hoped for a few years ago, and it has given the research worker a new basis from which to attack the problems of immunity.

The Principles of Vaccine Therapy.

It should be said in the beginning that the opsonic index as a measure of the immunity response under vaccination, is looked upon in this country as inaccurate. It requires a complicated technique, has many sources of error, and in our experience the results obtained are unsatisfactory. It has a value in diagnosis of obscure conditions.

Wright believes that a proper therapeutic dose of vaccine in an infected individual, is followed by a period of intoxication accompanied by a diminution in antibodies (negative phase), followed by a stimulation of the immunizing machinery and the production of an increased amount of antibodies (positive phase). Theoretically it should be possible to bring about the production of surges of antibody production, each wave higher than the preceding one, with progressive beneficial results to the infected individual. Wright, in his early work, insisted that in order to provoke a positive response to vaccination it was necessary to inject a sufficient dose to produce at first intoxication (negative phase). Our experience and that of others has shown that the ideal immunizing response can

Digitized by Google

be produced without the toxic negative phase. Physiological doses of vaccines should be followed by an immediate production of antibodies without toxic action.

Wright believes that the individual who is undergoing infection with a carbuncle does not produce sufficient antibodies because the toxins of the staphylococcus are not being absorbed from the local lesions, owing to the disturbed blood vascular circulation and the obstructed lymphatic drainage of the infected region. Such an individual, however, has general malaise and frequently shows temperature, both of which should be accepted as evidence of toxic absorption. A more reasonable explanation, it seems to me, is that while absorption of abundant toxic material is taking place, the character of the toxic material is not such as to stimulate the defensive forces. It is possible that there is some selective action in absorption so that certain beneficial stimulating substances may not be taken up by the lymph stream from the focus of infection.

Another reasonable explanation rests on a belief in the local character of many immunity responses. It has been generally accepted that the immune bodies are produced almost wholly by the blood-making (hemapoietic) organs and thence delivered into the blood stream. This theory fails to take into account the special immunity which certain tissues exhibit against infection.* Most important among these are the muscles. Voluntary muscle is recognized as almost completely immune to tuberculosis and undergoes infection with pus-producing organisms only after the intermuscular connective tissue has been overwhelmed. We recommend the injection of vaccines into muscle or into the intermuscular connective tissue. The satisfactory response which is obtained we believe to be due, in part, to

*Since this paper was read, Theobald Smith in a paper on "The Experimental Basis for Vaccine Therapy," read before the Massachusetts Medical Society, June 8, 1910, called attention to the possible local character of immune body production, and suggested vaccination in different sites as a means of awakening these local mechanisms.

Digitized by Google

the awakening of the defensive metabolism of the muscle system by a stimulus differing in character from the toxic material absorbed from the local focus of infection.

If the school of vaccine therapy does no more than to call attention to the muscle system as an important factor in the immune mechanism, it will have justified its existence.

Wright believes that an interval of at least seventy-two hours should elapse between inoculations of vaccines because of the toxic negative phase following each inoculation. Early in our experience it became evident that with proper dosage the negative phase could be eliminated. The immunity response began to appear almost immediately following the injection of a physiological dose of vaccine. We have therefore shortened the interval between doses markedly, particularly in ugly local or in general infections.

Wright advocated the exposure of the suspensions of bacteria used in making vaccines to 60 degrees C. for one hour for the purpose of killing. The immune response to the injection of vaccines is at least, in part, a specific one. This may be supplemented by more general phenomena (see staphylococcus below), but the object sought is an increased resistance to the specific organism which is producing the infection in a given case. Such an increased resistance means the formation of antibodies against the specific proteins of the bacterium. Bacterial proteins, as well as others, lose their specific character by exposure to high temperatures or by prolonged exposure to low temperature. We have, therefore, gradually shortened the time of exposure of such suspensions to a point where the organisms are just killed. We believe that our greatest contribution to vaccine therapy has been the modification of the killing method. Other methods of killing than by heat (galactose, ether, etc.) have since been advocated, in an effort to preserve the specificity of the bacterial proteins intact.

Digitized by Google

The staphylococcus aureus vaccine, in addition to provoking the ordinary specific immunizing response, seems to possess the power of stimulating an increase in general resistance. Merrick*, who treated a series of infants suffering from furunculosis, calls attention to the fact that the children not only recovered from the boils but their general nutrition became so improved after treatment that from a condition of emaciation they speedily became the best nourished and most resistant children in the institution.

General Infections.

The objections to the use of vaccines in infectious conditions seem to focus themselves against their use in general infections. They will, therefore, be considered here. The general harmlessness of vaccines is indicated by two cases of infection in which, through error, 10 c. c. of staphylococcus pyogenes aureus vaccine containing 10,000,000,000 organisms were injected at one time as an initial dose. This is forty times the standard initial dose. In one case no untoward symptoms appeared. In the second there was a temporary collapse with prompt response to heat and stimulation. There are few powerful drugs in the pharmacopeia which could be used with such disregard for dosage without serious results.

The most obvious objection to the use of vaccines in general infections is, that the patient is undergoing extreme intoxication and that the injection of vaccines will but add to this intoxication. I have called attention to our theory of muscle immunity and to the fact that physiological doses of vaccines are not followed by a toxic (negative) phase. The dose of vaccine used in pneumonia, for example, contains fewer organisms than will be found in a few out of the myriads of infected air sacs of the lung in this dis-

*Annals of Gynecology and Pediatry, September, 1908.

Digitized by Google

ease. The dosage is so infinitesimal and its toxic effect is so slight, if any, that it is not measurable. As evidence that even much larger doses are at least harmless, I might cite the case of a child of seven years undergoing an infection with pneumonia, with a temperature of 103 and extreme meningeal symptoms, into whose body were injected, as an initial dose, 8 c. c. of pneumococcus vaccine containing 1,600,000,000 pneumococci. The standard dose for adults is eight minims or 100,000,000 pneumococci. This child receiving sixteen times the adult dose of vaccine not only did not show harmful results, but began to mend shortly following the initial injection and recovered under daily injections of several times the usual adult dose. A second child with pneumococcus meningitis showed prompt diminution in the number of pneumococci in the cerebrospinal fluid and sharp amelioration of symptoms accompanying the use of four to eight times the standard adult dose of pneumococcus vaccine.

Another objection offered to the use of vaccines in general infections is that vaccines stimulate the production of bacteriolytic substances, and that these substances may kill many bacteria and set free their toxins, thus overwhelming the body with toxic products. Flexner's antimeningococcic serum is a bacteriolytic serum about whose value there is little question. It is injected into the subdural space of children who are suffering from extreme intoxication with the meningococcus and its products, in a region which is most sensitive to these products. Its injection is followed by the immediate action of its bacteriolytic substances on the meningococci with which they come in contact. Examination of the fluid shows a prompt and extreme diminution of the number of meningococci and yet I have never seen reported harmful results related to the sudden setting free of their toxins. Following the injection of vaccines the theoretical evolution of bacteriolytic substances, if occurring, must take place slowly and

Digitized by Google

gradually. There is not an explosive setting free of these substances such as the injection of meningococcus serum brings about and the effect, if any, must be less than that shown in meningitis, which is practically negligible.

It may be argued that Flexner's serum contains anti-endotoxins capable of neutralizing the toxins of the meningococcus when set free. If this is true it is the first practical antiendotoxic serum which has been produced (Besredka's antiendotoxic typhoid serum has only experimental interest) and Flexner makes no claims of antiendotoxic properties. Even though such claims are made the prompt recovery of a child into whose subdural space normal horse serum was injected in an emergency, when Flexner's serum could not be obtained, would indicate that danger from products of bacteriolytic action is not serious.*

A third objection is that patients undergoing infection are in an anaphylactic state—are therefore hypersusceptible to intoxication. With chronic infections such as tuberculosis this danger apparently exists and for that reason I believe the use of tuberculin in treatment should be carried out with extreme care. We have never seen evidence of its existence in the acuter conditions produced by other bacteria. It takes time for the establishment of anaphylaxis and the general infections with their sudden onset should be largely free from such danger. Anaphylaxis is a purely theoretical danger as is evidenced by the infrequency of serious results following the use of diphtheria antitoxin. If guinea pig experiments with horse serum gave a true picture of what was to be expected in human beings the use of diphtheria antitoxin would be so limited on account of anaphylaxis that its value would be very questionable. As I have said elsewhere, theoretical consideration of this sort must yield to the facts of experience.

*Personal communication.—Dr. S. P. Beebe.

Digitized by Google

DISTINCTION BETWEEN GENERAL AND LOCAL INFECTION.

The old belief in bacteriology was that there was a sharp dividing line between general and local infections. More recent work has demonstrated that such a line does not exist. Every case of typhoid fever is a general infection as is every case of pneumonia, endocarditis, meningitis and most of the acute septic processes. It has been demonstrated that every case of erysipelas starts in as a general infection. Recovery from these conditions is brought about first by the localization of the infection and then by the destruction of the bacteria in the local focus.

In streptococcus general infections French workers found that the injection of turpentine into skeletal muscle, if successful in provoking a local abscess, was associated with the focalization of the infection, which could then be handled as a local process. If the patient's condition was such that local abscess formation did not occur then the treatment was not successful.

Our grandfathers, probably with the same end in view, thrust setons through skin, subcutaneous tissue and muscle with apparently similar results.

Some of our results with general streptococcus sepsis were illuminating in much the same direction. We were given opportunity to treat cases of puerperal sepsis in which all clinical expedients had been exhausted and in which the outlook was hopeless. In a number of these cases a prompt drop in temperature followed the exhibition of vaccine. In this group I am somewhat sceptical as to the influence of the vaccine since other factors may have played a part. In many of the other cases there was a progressive forcing downward of both pulse and temperature which reached normal after several days. In certain of these cases local formation of pus, either in the uterus or else in muscle or subcutaneous tissue, occurred from one to three days after the temperature had reached normal. The further treatment of these cases consisted in the simple problem of caring for a local infection.

Digitized by Google

The localization of a general infection following the injection of turpentine into muscle by the French, the introduction of setons according to the older surgery, or the injection of specific vaccines according to the newer procedures, first drew our attention to the apparently important part which local defensive mechanisms and, notably, muscle played in increasing general resistance.

It is not my intention to speak of the use of vaccines in pneumonia until we have carefully collated the data obtained from reports of work during the past year. We have furnished pneumococcus vaccine for about 1,500 cases, but in spite of the fact that we made the reports so simple that a few minutes would suffice for recording the desired data, the return of these reports is slow. The evidence seems to predominate that this vaccine is a distinct addition to our armamentarium.

Limitations of Vaccine Treatment.

Vaccine treatment in surgical conditions does not do away with the necessity for intelligent surgery. In an accumulation of pus the opsonins and other antibodies which are formed in response to bacterial vaccination cannot be delivered from the blood stream into the pus. Contact with the bacteria is prevented and therefore the organisms are unaffected. It is essential that drainage be established. If this is done the bacteria along the granulating wall will be quickly destroyed and healing be more rapid than surgical measures alone could bring about.

Note.—I do not want to be misunderstood as claiming that we have solved the problem of streptococcus general sepsis. We believe that we have saved many cases of puerperal general sepsis which otherwise, according to the best views of able practitioners and consultants would have died. Some cases, notably those whose resistance was gone, have died. In cases where the resisting mechanism was still capable of stimulation the use of an autogenous vaccine killed at 60 degrees C. for fifteen to twenty minutes and injected at frequent intervals in physiologic doses has furnished remarkably good results and we have never seen evidence of harm.

Digitized by Google

Vaccine therapy does not supplant but supplements intelligent surgery.

With infections in certain locations, particularly along some mucous surfaces, vaccine therapy is less successful than elsewhere. Gonococcus vaccine, for example, has little influence on urethral infections in our experience, but a freshly prepared gonococcus vaccine made from first cultures from fresh cases gives such prompt and constant results in gonorrhœal rheumatism that we are led to doubt the diagnosis in cases which do not respond. Our doubts have been justified in all cases which did not respond in a considerable series.

In infections of the kidneys where there is a local irritant in the form of a stone or where drainage is interfered with, vaccine treatment has little value. If the colon bacillus is the infecting agent intoxication will be relieved and fever eliminated but local infection will persist.

In the bladder if residual urine is constantly present vaccine therapy is only palliative, since the chronic irritation of the bladder mucosa by products of the saprophytic bacteria usually present, will favor the continuation of the process.

In bacteriuria vaccines have little value. Bacteriuria is marked by the growth of organisms in the urine as in a culture medium. There is no infection. The bacterium and the human being are growing in harmony. No means of breaking this symbiosis has as yet been discovered for most organisms. Infection, if it exists, can be overcome, but the symbiosis persists.

Necessity for Resisting Ability.

Diphtheria antitoxin confers a passive immunity. It requires the patient only to furnish a circulation for its distribution. When it comes in contact with diphtheria toxin it neutralizes it without assistance from the patient. The defensive mechanism of the patient is left free to cope with the diphtheria bacilli at the point of infection.

Digitized by Google

Bacterial vaccines require the active co-operation of the patient. Vaccines, as far as we know, accomplish nothing directly except to stimulate the lagging immunizing machinery to produce needed antibodies. It is therefore essential that the defensive mechanism be in condition to respond to this stimulation if good results are to be obtained. For lack of this preparedness fulminating cases of streptococcus peritonitis, for example, in which the septic absorption is extreme do not usually respond to treatment, while slower infections do.

Practical Application.

It is not possible nor desirable to go into detail about practical procedures in this rather lengthy paper. Suffice it to say that the group of infections for which the average practitioner desires to use vaccine therapy, while comprehensive, is due to the activity of relatively few organisms. *Staphylococcus* vaccine is now accepted as the standard method of treatment of local conditions due to this organism. In general infections results are less satisfactory because, I believe, such a general process is usually a pyemia, and the organisms in a pyemia are contained in masses of clot and less accessible to the antibodies which may be formed.

Of *streptococcus* general infections I have spoken. Among local infections erysipelas responds, in most cases, with promptness. This is particularly true if an autogenous vaccine can be obtained. Local septic processes also respond promptly.

The empirical use of vaccines made from autogenous throat cultures and containing usually a mixture of the pneumococcus and streptococcus has given usually prompt relief of pain and a bettering of other symptoms in a large percentage of the cases of rheumatism treated.

The treatment of the associated infection in tuberculosis with autogenous vaccines in which the streptococcus and

Digitized by Google

pneumococcus usually predominate, is accompanied by diminution of temperature and relief of cough and night sweats followed by increase of weight.

Pneumococcus and *gonococcus* processes have been mentioned.

The frequency with which B. coli is an infecting agent has only been fully appreciated since vaccine therapy has been inaugurated. The colon bacillus may give rise to marked toxic symptoms from a relatively slight infection. Such intoxication can be relieved usually within a few hours. Genitourinary infections due to this organism have been considered. The response in bladder infections where well drained is rapid, and permanent where reinfection can be guarded against. In typhoid fever the so-called exhaustion which arises in the late stages and which leads frequently to a fatal issue is, apparently, due to B. coli infection. An autogenous vaccine made from the feces has in three cases with us been followed by a prompt disappearance of the septic temperature and rapid progress to convalescence. In membranous colitis an amelioration of symptoms persists while the vaccine is used, but prompt relapse usually follows its withdrawal. B. coli vaccine prepared from the urine of cystitis, associated with rheumatism or rheumatoid conditions, has not only cleared up the cystitis but has also relieved the rheumatoid symptoms promptly in a small series of cases with us. B. coli should always be prepared directly from the patient's organisms and should be used in small doses. The initial dose should not be more than 25,000,000, cautiously increased.

Tuberculin—No final judgment of the value of any agent used in the treatment of tuberculosis can be made unless its practice has been followed for many years. I am, therefore, only hazarding an opinion of the value of tuberculin from our limited observation. I believe that tuberculin, in proper doses, is a valuable addition to standard methods of treatment. Its use, however, is associated with

Digitized by Google

dangers which make extreme caution necessary in its exhibition. Wright's method, which calls for an extremely small dose at weekly intervals, seems to eliminate all dangers of over-dosage.

I hope that the time is not far distant when local laboratories will properly develop the field of vaccine therapy. The observer in this field requires an accurate and extensive knowledge of the small group of organisms which play a part in most infectious processes. With this mental equipment a knowledge of the technique of vaccine production and therapy can be quickly developed. There is no reason why autogenous vaccines cannot be produced in the larger hospitals and medical centres of the community. I look forward to the day when an equipment in this direction will be expected of the local pathologist and bacteriologist. A wider use of vaccines will do away with the objections of the man who bases his criticisms on hearsay or on a single case.

Vaccine therapy is in its infancy. It is but a step in progress toward the specific therapy of infectious processes for which the medical world has been anxiously waiting. I trust that I have made clear my reasons for believing that through the new viewpoints it has opened, a way to the solution of these problems may be made possible.

DISCUSSION.

HOWARD N. KINGSFORD, M. D., HANOVER.

In connection with the admirable paper of Professor Leary I have nothing to add, but I would like to say something in regard to the work of the physician in the laboratory in the cases where vaccines are indicated. As Dr. Leary says, the physicians are careless about sending in their records, so that the laboratory has to spend more time and more money in getting at the facts which will enable them to perfect the conditions and the treatment.

Digitized by Google

Physicians are also careless in the way they take their material sent to the laboratory. They usually take it without any precautions whatever, as to getting the outside surroundings clear so that they can be absolutely sure that the material they get is material from the injured area and from nowhere else. Consequently they will send in something from which the laboratory man is not able to get the toxin which is really causing the trouble, and, therefore, he cannot send the serum which is necessary.

Another thing which we want to bear in mind is that the infections oftentimes are not simple infections, that they are mixed infections, that there are a number of different kinds of toxins connected in that particular area which is diseased, although there may be one which is causing the trouble, and thus the physician must not expect too much from the serum treatment of those cases of mixed infection.

There is no question but that the treatment in cases of furunculosis is prompt, and in a great many instances clears the cases up. We saw quite a number of them among the students, and I have in mind one or two students who had had furuncles for quite a while, and I know that Dr. Leary had something to do with treating one of them, who absolutely recovered from his trouble. He was not able to do any work before his treatment.

The failure in results from the treatment is due more to carelessness of the physicians in securing the material than in the amount of serum used. Of course, as Dr. Leary says, there are only a few cases in which the serum has been absolutely established as being of value, and whenever cases come up in which the serum is indicated, the physician should be extremely careful to get the material that he sends to the laboratory from the diseased area. As Dr. Leary says in his paper, the first culture is the important one, and results from cultures in the laboratory are not as good as those from cultures which come di-

Digitized by Google

rect from the patient. He also brought out the fact that there are a great many different kinds, especially of streptococcus. If the physician is careful in selecting his material, getting it from the right place, getting it from the real source, and not from the pus on the dressing or on the outside, the individual who makes the examination in the laboratory might find the particular one he had in stock, and that would enable the treatment to go on more promptly and with less expense.

In connection with the antitoxin treatment in pneumonia, I think a number of the physicians in this state have used it with quite a degree of success. Pneumonia, as Dr. Leary says, is a self-limiting disease, and it is a disease in which, oftentimes, the pneumococcus is predominating in the culture gotten out, but there are other toxins which may create some disturbance, so that the results of the injection would not be as satisfactory as the physician might expect.

However, I think the advance made in serum therapy is great in the last few years, and that we are justified in trying it in cases in which we are absolutely sure about the diagnosis, or in cases which do not do well under the ordinary treatment.

WILLIAM H. LEITH, M. D., LANCASTER.

Professor Leary has presented a very timely paper, one of great interest to us all. It is essentially an educational paper, presented by Dr. Leary and discussed by Dr. Kingsford from the instructor's standpoint.

While the general practitioner cannot discuss the use of the different sera to a great extent at the present time, yet we have knowledge of the successful treatment of furunculosis, pustular acne and gonorrhœal arthritis, so that it is not too much to expect when Dr. Leary shall come again as our guest, he will find us discussing the serum treatment from the standpoint of clinical experience.

Digitized by Google

REPORTS OF COUNTY SOCIETIES.

ROCKINGHAM COUNTY.

WALTER TUTTLE, M. D., SECRETARY.

The fifth annual meeting of the Rockingham County Medical Society was held at The Rockingham, Portsmouth, on Thursday, November 11, 1909.

The president, Dr. A. W. Mitchell, of Epping, called the meeting to order at 10.30 a. m.

Officers for the year:

President—Dr. E. A. Landman, Plaistow.
Vice-President—Dr. T. W. Luce, Portsmouth.
Secretary—Dr. Walter Tuttle, Exeter.
Treasurer—Dr. A. M. Chesley, Exeter.
Delegate for two years—Dr. J. W. Parsons, Portsmouth.
Censor—Dr. J. H. Neal, Portsmouth.

PROGRAM.

President's address,
Dr. A. W. Mitchell, Epping.
"What is the Maximum Dose of Morphine Sulph,"
Dr. D. W. Colcord, Seabrook.
Discussion opened by Dr. A. B. Sherburne, Portsmouth.
"Asthma,"
Dr. T. W. Luce, Portsmouth.
Discussion opened by Dr. A. J. Lance, Portsmouth.
"Typhoid Fever,"
Dr. H. C. Day, Exeter.
Discussion opened by Dr. W. B. Kenniston, Exeter.

Digitized by Google

The discussions were spirited and often pointed but reflected much of the thoughtfulness and carefulness of contestants.

An excellent dinner was served at half-past one. After the dinner the business was resumed.

Adjourned at 4.30.

STRAFFORD COUNTY.

HARRY O. CHESLEY, M D., SECRETARY.

The one hundred and second annual meeting of the Strafford County and District Medical Society was held at the Kimball House, Dover, N. H., October 28, 1909.

Dr. John L. Sweeney, Dover; Dr. Napoleon Leduc, Somersworth; Dr. Alfred Deaudelin, Somersworth, were admitted to membership.

The following officers were elected for the ensuing year:

President—T. J. Dougherty, Somersworth.

Vice-President—M. A. H. Hart, Milton.

Secretary—L. W. Flanders, Dover.

Treasurer—A. N. Smith, Dover.

Auditor—M. B. Sullivan, Dover.

Censor for three years—D. L. Stokes, Rochester.

Delegate—J. H. Bates, East Rochester.

Orator—L. L. Gilman, Rochester.

Reporters—L. E. Grant, Somersworth; C. W. Gross, Milton; M. B. Sullivan, Dover; J. H. Richard, Dover; Inez Ford Nason, Dover; G. P. Morgan, Dover.

The following papers were read:

President's address, Dr. L. W. Flanders, "The Mind Diseased."

Dr. J. H. Bates, "Some Evolutions of the Vermiform Appendix."

Dr. M. A. H. Hart, "Uric Acid."

Dr. F. L. Keay, "Diphtheria."

Digitized by Google

BELKNAP COUNTY.

A. H. HARRIMAN, M. D., SECRETARY.

Number of meetings held during year, aside from those connected with the post-graduate school, 10.

Weekly meetings of post-graduate school have been held since December 10, 1909. Number of papers prepared and read at meetings were 8.

Number of meetings with no papers were 2, at one of which Dr. McCormack, of Bowling Green, Ky., gave an address; and at the other there was a public clinic held at the hospital.

We have had an average attendance of 11.

We have had during the year 11 visitors.

Homeopaths do not join our society, nor do they, except rarely, attend our meetings.

Total membership is 23. This includes two members living in Grafton county and one honorary member.

Number of doctors in county not affiliated, 20.

We have lost one member only by death in last year.

CARROLL COUNTY.

E. W. HODSDON, M. D., SECRETARY.

Carroll County Medical Society met at Sanbornville, December 22, 1909. Present, Drs. Clow, Lord, Croft, Andrews, Hoag, Davis, Gross and Hodsdon.

Paper by Judge Oscar L. Young, of Laconia, "Degree of Care, Skill and Diligence Required of a Physician and Surgeon." Discussed by Drs. Davis, Clow and Hodsdon.

Report of case of cirrhosis of stomach by Dr. Clow.

Elected the following officers:

President—Fred E. Bryar, North Sandwich.

Vice-President—A. B. Hoag, Centre Sandwich.

Secretary—E. W. Hodsdon, Mountainview.

Treasurer—N. H. Scott, Wolfeboro.

Digitized by Google

Censor—S. W. Davis, Sanbornville.

Delegate to State Society—E. W. Hodsdon.

Quarterly meeting was held at Sanbornville, April 14, 1910.

Present, Drs. Hoag, Getchell, Clow, Tobey, Andrews, Davis and Hodsdon.

A case of cancer of stomach was reported by Dr. Hoag and discussed by Drs. Clow and Hodsdon.

Drs. Clow, Tobey and Hodsdon were appointed a committee to prepare and forward resolutions to congressmen in favor of Owen bill and against Cullum bill.

A case of gunshot wound of neck of femur was reported by Dr. Hoag.

Adjourned.

CENTRE DISTRICT AND MERRIMACK COUNTY.

PEARL T. HASKELL, M. D., SECRETARY.

The meetings of the society are held on the second Tuesday of January, April, July and October.

The July meeting was held at Franklin by invitation of the president, Dr. John W. Staples. Carriages conveyed the members to Sanborn Hall, which overlooks the Merrimack valley.

Luncheon was served in the grove, after which Hon. Clarence E. Carr, of Andover, gave a sketch of the life work of Dr. Henry A. Weymouth, of Andover.

Dr. Elliot P. Joslin, of Boston, read a most interesting paper on "The Present Treatment of Diabetes Mellitus."

Members present, twenty-eight.

The October meeting was held in Knights of Malta Hall, the address being by Dr. J. N. McCormack, of Bowling Green, Ky., chairman of the organization committee of the American Medical Association.

The eighty-eighth annual meeting was held Tuesday, January 11, 1910, at the Eagle Hotel, Concord, N. H.

Digitized by Google

Papers were read by Dr. F. H. Sargent, of Pittsfield, and Dr. A. A. Beaton, of Franklin.

The address of the retiring president, Dr. John W. Staples, was listened to with special interest.

The following officers were elected:

President—Arthur K. Day, Concord.

Vice-President—Alexander A. Beaton, Franklin.

Secretary-Treasurer—P. T. Haskell, Concord.

Chaplain—Rev. W. Stanley Emery, Concord.

Delegates—George C. Blaisdell and Clarence E. Butterfield.

Censors—Anna M. Littlefield, one year; Charles H. Dolloff, two years; Arthur M. Fernald, three years.

Committee on Program—President, Secretary, and Dr. Frank W. Grafton.

Committee on Public Health—D. E. Sullivan, F. H. Sargent, L. A. Sanders.

During the past year the society has taken in five new members and lost one by death.

HILLSBOROUGH COUNTY.

E. B. ATHERTON, M. D., SECRETARY.

Hillsborough County Medical Society has this year had its membership increased by seven new members, and depleted by the removal of two from the county and, also, by the death of two, Dr. C. B. Hammond, of Nashua, and Dr. Clarence Dodge, of Manchester.

We held a special meeting in October to listen to Dr. McCormack of the A. M. A. There were about fifty members present, and I later received a letter from Dr. Green, saying the meeting was the best Dr. McCormack had held in New England. Our fifth annual meeting was held in Manchester, April 6.

Dr. Bartlett, of Glencliff, was the principal speaker and gave us an interesting talk about the sanatorium treatment of tuberculosis.

Digitized by Google

A committee was appointed to look into Senator Cullum's bill, regarding the sale of narcotics, and take such action as seemed to them advisable.

Three men were reported to be in practice in Manchester without a license, and the secretary was instructed to write the chief of police about them.

The following officers were elected by ballot:

President—J. H. Gleason, Manchester.

Vice-President—H. L. Smith, Nashua.

Executive Committee—Frank Blaisdell, Goffstown; Arthur F. Sumner, Manchester; William E. Reed, Nashua; Joseph W. Finerty, Milford; Guy H. Greeley, Merrimack.

Delegates to State Society—George S. Foster, Manchester, three years; Frank E. Kittredge, Nashua, two years; Nathaniel F. Cheever, Greenfield, one year.

Auditor—J. B. Pettingill, Amherst.

Secretary-Treasurer—Ella B. Atherton, Nashua.

CHESHIRE COUNTY.

E. A. TRACY, M. D., SECRETARY.

The summer meeting of 1909 was held at Hotel Hinsdale, in Hinsdale, Vice-President A. W. Hopkins in the chair. Dr. Hopkins read a paper on "Syphilis: A Case, with Treatment." The paper was interesting and was discussed at length.

The meeting adjourned for dinner at 1 o'clock, and at 2 o'clock, being reassembled, Dr. L. R. Brown, of Winchester, favored us with an interesting paper on "Vomiting of Pregnancy, with Successful Treatment of Same."

It was voted at this meeting that the chair appoint a committee of five to arrange for an outing at Forest Lake, Winchester, and that the druggists of the county be invited.

The outing above mentioned was held in July, and was largely attended by doctors and druggists from all parts of the county.

Digitized by Google

The annual meeting was held October 4, at the Cheshire House in Keene, Vice-President Hopkins presiding.

Dr. A. A. Pratte, of Keene, was elected secretary *pro tem.*

The following officers were elected:

President—A. W. Hopkins, West Swanzey.

Vice-President—C. S. Walker, Keene.

Secretary-Treasurer—E. A. Tracy, Keene.

Delegates—B. T. Mousley, Alstead; S. M. Dinsmoor, Keene.

Censors—I. J. Prouty, Keene; W. H. Aldrich, Marlboro; I. A. Loveland, Keene.

Dr. J. N. McCormack, of the organization committee of the American Medical Association, delivered an address, pointing out the advantages to be derived from a closer union among physicians of a community; from the existence of a more harmonious spirit; from a course of post-graduate study. He cited several examples to show wherein his ideas were practicable.

Dr. McCormack's lecture to the public, in the evening, was thoroughly enjoyed by a large audience, which filled Music Hall.

The following committees were appointed at this meeting:

To consider advisability of post-graduate work: Drs. Prouty, F. M. Dinsmoor, Proctor and Tracy.

Committee for investigating criminal abortion to co-operate with county solicitor: Drs. Prouty, Tracy and Pratte.

Committee on public health and legislation: Drs. Walker, Foss and S. M. Dinsmoor.

At 1.30 we adjourned to the dining room for dinner, where we extended our best wishes to our councilor on the occasion of his twenty-fifth wedding anniversary, afterwards receiving his, which was passed around the table. After enjoying another of Landlord Reynolds' excellent dinners we again assembled in the meeting room, where

Digitized by Google

we listened to a few more remarks by Dr. McCormack, and a paper by Dr. J. J. Osterhout, reporting a case of salivary calculi in Wharton's duct.

At a special meeting held December, Dr. Prouty, chairman of committee on postgraduate work, advised that the work be taken up and that we meet every two weeks to discuss subjects assigned. This the society voted to do.

The application for membership of Dr. Williams, of Gilsum, was received and referred to the censors, and Dr. J. Mariner Thompson was admitted by transfer from Hillsborough county.

The February meeting, held on the eighth, consisted of a purely business transaction.

Dr. James A. Craig, of Westmoreland, was elected as a substitute for Dr. B. T. Mousley, delegate to the state society.

Dr. Williams' application for membership was approved by the censors and he was elected to the society.

By vote of the society the program for this meeting was postponed until the June meeting.

SULLIVAN COUNTY.

EMERY M. FITCH, M. D., SECRETARY.

The old Sullivan County Medical and Surgical Society had been as a dead issue for the past two years, the last meeting being held in Claremont, July, 1907. This neglect to hold meetings allowed the society to lapse and Sullivan county was without representation at the last meeting of the New Hampshire Medical Society.

The state society, desiring to have a working organization in Sullivan, as in all other counties, took a special vote "that the House of Delegates instruct the councilor of Sullivan county to make every effort during the coming year to reorganize and secure a working society in Sullivan county." Acting upon this motion the councilor

Digitized by Google

talked with different men in the county and found them desirous of forming a working society. Through the efforts of a few of these men a program was arranged and a meeting called for August 10. There were present at that meeting sixteen men of the county and three guests, and a very pleasant and profitable hour was spent by all. The meeting was called to order by Dr. E. P. Cushman, president of the Sullivan County Medical and Surgical Society, who called for the appointment of a temporary chairman and secretary. Dr. E. M. Fitch was chosen temporary chairman and Dr. H. C. Sanders temporary secretary.

Dr. Frank Blaisdell, of Goffstown, president of the New Hampshire Medical Society, was present as a guest and gave a very interesting and helpful talk on reorganization, pointing out in a very pleasing manner the needs, both to the state and to ourselves, of having a working society in Sullivan county. Those who were present went away convinced that we were in need of a working society in this county.

It was voted at this meeting that the old Sullivan County Medical and Surgical Society be discontinued and that a new society called the Sullivan County Medical Society be formed, adopting the constitution and by-laws laid down by the New Hampshire Medical Society for use of the component county societies.

The officers chosen for the new society are:

President—E. C. Fisher, Sunapee.

Vice-President—F. P. Claggett, Newport.

Secretary—E. M. Fitch, Claremont.

Treasurer—D. M. Currier, Newport.

Censor for one year—A. S. Marden, Newport.

Censor for two years—O. C. Young, Charlestown.

Censor for three years—H. C. Sanders, Jr., Claremont.

It was voted to hold at least two meetings each year, one in Claremont during the first week of January and the other in Newport during the first week in July. The

Digitized by Google

dues of the society were fixed at fifty cents per year. The society was organized with sixteen members. It was the spirit of the meeting that any regular physician now practicing in Sullivan county could become a member by sending his name, together with fifty cents to pay his yearly dues, to the secretary.

Dr. Gile, of Hanover, was present and gave a very interesting talk on "Surgery of the Prostate Gland."

GRAFTON COUNTY.

GEORGE A. WEAVER, M. D., SECRETARY.

The Grafton County Medical Society has entered upon the sixth year of its existence. Beginning with twelve charter members in 1904, it has had upon its rolls a total of fifty-two physicians. This number, however, is not identical with that of its present membership for the society has suffered losses during the past five years, by the death of five members and the withdrawal of six others. Of the latter, four withdrew because they had removed from the county, and the other two because they found it more convenient to attend meetings in adjacent counties.

At present there are seventy-six physicians practicing in this county. Of these, forty-one are affiliated with this society; and of the remaining thirty-five, several, including two to whom reference is made above, are members of the organization in other counties. From these figures it will be seen that about 54 per cent. of the physicians in Grafton county affiliate with our society. The figures, however, do not give a true idea of the situation, for it is not often that there are more than twenty-five members present at a meeting. By this statement, I do not mean to imply that our meetings are not interesting and profitable. The opposite is true. I simply intend to say that our meetings are not as well attended as they should be. There is sufficient excuse for the absence of men in practice at

Digitized by Google

Woodstock, Lincoln, Bristol and Enfield, who must, necessarily, make a long and inconvenient journey to be present at the two meetings which we hold each year; but it seems as if there cannot be any very good reason why the number of unaffiliated men at Plymouth and Lebanon is so large.

Since the visit of Dr. McCormack last year. the physicians at Woodsville have taken the initiative in establishing a post-graduate course. Thus far, they are the only group of men in this county to take advantage of this excellent idea, but it is hoped their example will soon be followed in the other large towns.

I regret to have to report the death of Dr. William T. Smith, of Hanover, which occurred on September 17, 1909, and that of Dr. C. F. McGahan, of Bethlehem, February 16, 1910. I do not attempt an extended obituary of these men in this space, because, no doubt, appreciative tributes will be paid their personalities and careers elsewhere in these transactions.

COOS COUNTY.

FRANK W. EVANS, M. D., SECRETARY.

Our midsummer meeting was held at the Mt. Madison, Gorham, June 30. Dr. R. E. Webb, of Lancaster, gave a talk on the "Tent Treatment of Tubercular Patients." Dr. W. H. Leith of Lancaster, read a paper on "Cardiac Failure and Acute Cardiac Dilatation in Acute Infectious Fevers."

We met at the Fiske House, Whitefield, December 30, for our annual meeting. There were only nine men present, and in the absence of our president, Dr. C. E. Hight, of Groveton, was made president *pro tem.* Dr. G. H. Morrison, of Whitefield, read a paper on "Diphtheria and Throat Troubles Resulting from the Streptococcus with Methods of Differentiating between the two prior to a Laboratory Report." This created a general discussion

Digitized by Google

and the subject was well thrashed out. Resolutions were read on the death of Dr. J. D. Holt, of Berlin, who was a charter member and former president of the society.

The following officers were elected for the coming year:

President—J. J. Cobb, Berlin.

Vice-President—F. W. Evans, Coös.

Secretary-Treasurer—F. W. Evans, Coös.

Delegates—G. H. Morrison, Whitefield; W. H. Leith, Lancaster.

Censors—W. H. Leith, Lancaster; E. F. Brown, Groveton; R. E. Wilder, Whitefield.

Digitized by Google

OBITUARIES.

CLARENCE M. DODGE, M. D.

Clarence M. Dodge, M. D., since 1879 one of Manchester's most widely known physicians, died June 19, 1909, from the effects of a paralytic shock, which came as he was sitting at his office desk on May 28. He was at his home, 61 Jones street, when death came.

The stroke of paralysis which brought the end came as the climax of a series of difficulties which had been preying on his mind and undermining his health, his business affairs being entangled in a way which brought great disappointment, and the prospective failure of long cherished plans. Few intimate friends knew of the pressure under which he was working, and while they are deeply grieved at his death, they are not surprised that he succumbed. He was in his sixty-third year.

Clarence Monroe Dodge was a native of New Boston, born May 25, 1847. Two years later he was left without a father, James M. Dodge, the father, and Willard Dodge, a brother of Clarence, perishing on the Isthmus of Panama while on their way to the gold fields of California in the rush of 1849.

Clarence Dodge attended the New Boston and Goffstown schools for a time, but his widowed mother determined to give him the best education within the reach of her means, and with this in view, removed to Mont Vernon, where the lad attended the public schools and Appleton Academy, afterwards the McCallum Institute and now the Stearns school. Afterwards the family moved to Nashua.

It was in Nashua that Dr. Dodge began the study of medicine, in the office of Dr. Josiah G. Graves. This was in 1872. In the same year he married Estella G., daugh-

Digitized by Google

ter of Orin and Maria M. Rawson of Nashua. In 1877 he was graduated from the University of New York, and immediately began the practice of his profession at Amherst, remaining there two years.

In 1879 he came to this city, and with the exception of a year passed in foreign travel and study, had led an active business and professional life until within a few days of his death.

Dr. Dodge came into unpleasant prominence several years ago as defendant in a serious criminal case, but was acquitted in a trial which commanded unusual attention.

Besides having an extensive medical practice, Dr. Dodge did a good deal of real estate business. He developed the Dodgeville district in East Manchester and was interested in the wrapper factory building. He planned and built several fine houses, including the one now the residence of former Governor Floyd, and otherwise contributed largely to the tax value of the city. His energetic public spirit was frequently displayed in the extension of streets, development of land, street lighting and other public improvements that will long remain as a monument to his memory.

The doctor was of a reserved disposition, but once an acquaintance was formed with him, he was found to be a genial, companionable man, well informed on many subjects, an altogether pleasant, affable man to meet and pass an hour with. His plans for his children occupied much of his thought and that his health failed before he could see these realized was a crushing blow to him.

In 1900, Dr. Dodge married Annie E. O'Brien of Wolfstown, P. Q., and she with the following children survives him: Walter Clarence, Ormond Monroe and Mildred.

Dr. Dodge was a member of the New Hampshire Medical Society, the Manchester Medical Association, of Lafayette Lodge, A. F. and A. M., Mount Horeb Royal Arch Chapter, Adoniram Council, Wildey Lodge, I. O. O. F.,

Digitized by Google

Wonalancet Encampment, Grand Canton Ridgely, Queen City Lodge, K. of P., and Passaconaway Tribe of Red Men. He was a member of the Grace Episcopal church.

JOHN W. PRAY, M. D.

John W. Pray was born in Dover, N. H., August 8, 1852. He was the son of Dr. T. J. W. Pray and Sarah Elizabeth (Wheeler) Pray. He died at Northwood, N. H., June 19, 1909, of tuberculosis of bowels, after a long illness. He graduated from Bowdoin College, class of 1874, and soon after entered Harvard Medical College. In September, after taking his degree at Harvard, he settled in Northwood where he had a large and successful practice until declining health compelled him to give up his work.

January 9, 1883, he married Miss Lizzie Martin, of Lynn, Mass., who survives him.

WILLIAM T. SMITH, M. D.

It is difficult for this society to adequately express in words the sense of the loss it has suffered in the death of Dr. William T. Smith. It seems but occasionally that the opportunity of position, of training, of right personality falls upon one man, and when to these is added the spirit of unselfish helpfulness we have a man whose place is unfilled when he has gone. In Dr. Smith we recognized these qualities in fullest measure and in his death the fullness of our loss.

With the permission of Professor Bartlett I quote from his address delivered at Dr. Smith's funeral:

"We think and speak of him each in the same way, first of all as the man of character—of winning goodness, also of efficiency, influence and power. * * * He usually brought to pass what he wished to accomplish, not by force, but by time and by the persuasion of its reasonableness. * * * Blameless himself, he knew human frail-

Digitized by Google

ties as a doctor must, and for the foibles of others he had always a kindly consideration and for sin or rather the sinner a wonderful excusing charity. * * * His poise and dignity and temperateness made it seem most natural that whatever others were, he should be and should have been exactly the good man he was."

Dr. Smith was born in New York city in 1839. He graduated from Yale College in 1860, and eighteen years later—in 1878—from Dartmouth Medical School. These eighteen years between his degree in arts and his degree in medicine were years of ill health, spent in part in Hanover, where his father had become president of Dartmouth College, and in part in travel.

Beginning the practice of medicine at the age of forty, still in delicate health, he made in the remaining years of his life a reputation, that spread over two states, for character, skill and integrity, a record that it would be difficult to duplicate in the annals of medical history. It was not until the age of fifty that his surgical practice developed and, yet, from the professional standpoint, it is that for which he is chiefly remembered.

His professional duties did not prevent him from entering heartily and helpfully into all civic enterprises, and the town of his adoption will long remember and miss him as the worthy citizen, as well as the skilful physician.

I can say nothing to you that you do not already know of his broad and wise influence in the affairs of this society. It was ever the wide look to the highest common weal. Not of the society for the society alone, but for the society as an integral part of the welfare of the commonwealth. Only by emulating that unselfishness can we aid in realizing that vision.

In his daily work he brought help, and cheer, and encouragement, not only to the needing family, but in his consultation work to the physician in the mountain hamlet and the busy town.

Digitized by Google

His memory is our priceless legacy; his realization our example.

LEYANDER J. YOUNG, M. D.

Dr. Leyander J. Young of Haverhill, Mass., died very suddenly from cerebral hemorrhage, October 27, 1909. Dr. Young was born in Barnstead, N. H., February 9, 1850. He received his early education in the public schools of his native town, and later attended Pittsfield Academy and Northwood Seminary.

He entered Dartmouth Medical College where he remained during one course of lectures, and afterwards graduated at the University of Vermont in 1877. Immediately after graduation he began the practice of medicine in Candia, N. H., where he remained seven years. He removed to Haverhill, Mass., in 1884, where he continued in active practice until the time of his death.

Dr. Young was a member of the American Medical Association, the Massachusetts Medical Society and one of its councilors and supervisor of censors for the fourth Essex district. He was also a member of the Haverhill Medical Club, having been connected with it since its organization in 1887. He was a member of the visiting staff of the Hale Hospital, and also served for many years upon the board of United States examining surgeons for pensions.

At the time of his death he was chairman of the local board of health. He was a prominent and active member of the Winter Street Freewill Baptist Church and also many fraternal organizations. Dr. Young was a man of excellent judgment, sound common sense, broad sympathies, strict integrity and unfailing generosity. He acquired a large practice and enjoyed the unbounded confidence of his patients for whom he often acted as adviser and friend, as well as physician.

Digitized by Google

Digitized by Google

CHARLES F. GEORGE, M. D.

Digitized by Google

CHARLES F. GEORGE, M. D.

Charles F. George, was the son of Charles and Letitia (Hadley) George, and was born in New Boston, February 21, 1841. His parents moved to Goffstown when he was but one year old, and he received his early education in the public schools of that town. He further pursued his studies at the higher schools of this state, entering Pembroke Academy at the age of sixteen, and going from there to Colby Academy at New London, after which he taught school with much success for a number of years, being esteemed by his pupils as a man and as an instructor. Having resolved to study medicine, he began his studies with Drs. W. D. Buck and L. B. Howe of Manchester, who were then having a very successful medical school. Dr. George took his first course of lectures at the medical department of Bowdoin College, going from there to the College of Physicians and Surgeons of New York, from which institution he graduated in 1862, and at once commenced the practice of his profession at Centerville, Mass. After being there some years the doctor had a very severe attack of pneumonia, and was obliged to get away from the cold winds of the Cape. He came back to Goffstown and getting better in his native air, he went to Nashua for two years, then returned to his home town never to leave it again, practicing for thirteen years at Goffstown Centre (Grasmere), and at Goffstown Village for twenty years. Dr. George was not a strong man physically, but did more work than many stronger men; his rides were long, and he always went when able to do so, his patients not wanting anyone else when they could get him, so, like many other hard-working country physicians, he wore out, relinquishing practice from physical infirmities a couple of years before his death.

In 1864, Dr. George was united in marriage to an old schoolmate, Miss Rebecca Greer, daughter of Colonel Benjamin Greer of Grasmere, and she was spared to nurse him

Digitized by Google

tenderly and carefully during his last days. Two children were born to them, the younger dying in childhood, the elder, Mrs. Arthur Spencer, now living in Grasmere.

Dr. George was a Democrat in politics and had represented his town in the Legislature, and was often honored by his party with offices of trust. He was a prominent Mason, a charter member of Bible Lodge of Goffstown, and a past master; a member of Mt. Horeb Chapter, Adoniram Council, and of Trinity Commandery at Manchester, and of Martha Washington Chapter, O. E. S. He was also a charter member of Granite Lodge, N. E. O. P., and a charter member of the Knights of Honor at Manchester. Dr. George was a member of the New Hampshire Medical Society, and an associate physician of the Elliott Hospital at Manchester.

And thus they are going, the doctors of the old school. Loved by their patients, trusted by their townsmen, a dominant force in communal life, they are leaving us, but going to a reward awaiting, for these men worked for the healing of their fellow men, and "All healing is divine healing."

Dr. George was one of that splendid class of men that are lovingly spoken of as "Our family doctor." His patients loved him, he was faithful to them, and he not only healed their sickness, but helped them in a hundred ways, being not only their physician, but their confidant and friend, and to this class of men the honest, hardworked physician must have been sent the message, "Inasmuch as ye did it unto one of the least of these my brethren, ye did it unto me."

Dr. George died of cerebral hemorrhage November 3, 1909.

CHARLES H. BURNHAM, M. D.

Dr. Charles H. Burnham of Jefferson passed away at the home of Wesley H. Berry on Wednesday morning,

Digitized by Google

Digitized by Google

HENRI T. FONTAINE, M. D.

Digitized by Google

November 3, 1909. The doctor had a shock about two years ago but he recovered sufficiently to be around and do a little business. On the day before his death he appeared to be feeling as well as usual, being able to go to the postoffice and to visit some of his friends. Early Wednesday morning about 3 o'clock, he was heard to get up and go out into the kitchen after some water and return to his room. Mr. Berry was away on a hunting trip at the time, and when breakfast was ready Mrs. Berry sent her son to call the doctor. The boy found him lying on the floor unconscious and apparently dead. Dr. Aldrich was immediately summoned, and upon examination he detected a very slight pulse, but death came soon after. Heart failure was assigned as the cause of his death. He was born in Limerick, Me., about 76 years ago, and is survived by two sisters. He came to Jefferson thirty-four years ago, and has practiced his profession ever since. He has filled many public offices during his residence here. He had been a member of the school board several years, did efficient work as a selectman, and had represented this town in the General Court. He was a man who was very positive in his ideas and ever ready for an argument. Being a great reader and student and a ready talker on any subject, he usually came out master of the situation. He made many friends, and was very generous to them in all his dealings. Funeral services were held in the M. E. Church, Friday afternoon, under the auspices of the Masons. There were many beautiful flowers, gifts of the various fraternities of which he was a member and of relatives and friends. Interment took place in the Forest Vale cemetery, where his wife is also buried.

HENRI T. FONTAINE, M. D.

Dr. Henri T. Fontaine was born at La Prairie, Canada, August 22, 1867, his parents being Joseph O. and Lena Fontaine. His parents moved from Canada to New

Digitized by Google

Hampshire when he was two years old, and settled in the town of Pembroke. Dr. Fontaine received his early education in the common schools and his preparatory education for college at Sherbrooke, Que. He afterward entered the Harvard Medical School from which he was graduated in 1893.

After taking a post-graduate course and an arduous course of hospital staff work, he established himself in the practice of medicine in the village of Pembroke, his home town. It was about this time that symptoms of tuberculosis developed. With characteristic promptness and vigor he set about the task of self cure, being among the first in this country to adopt the modern scientific methods for the treatment of the disease. He spent a time in the Adirondacks and succeeded in arresting the disease. He returned to Suncook to resume his practice, but in order to continue his outdoor life he built himself a log cabin in a beautiful spot in the pine woods on Pembroke hill, on land now occupied by the Pembroke Sanatorium. He became at once the indefatigable missionary of hope to the consumptives of this state, and devoted his life to an effort to spread the principles of an intelligent and scientific treatment of the most destructive disease now known to the world. He founded the Pembroke Sanatorium for Consumptives in 1901 and the management of the institution continued in his hands until his death by Bright's disease in November, 1909. He was a recognized authority on the subject of tuberculosis. The sanatorium he erected has proved to be a model in many respects on which many richer and greater sanatoria have been constructed. Tuberculosis experts as eminent as Dr. Otis of Boston, have paid public tribute to the scientific wisdom with which the Pembroke Sanatorium was planned. In 1906, Dr. Fontaine wrote a treatise on the treatment of tuberculosis which won the Pray prize offered by the New Hampshire Medical Society for the best medical essay. He represented the

Digitized by Google

town of Pembroke in the Legislature of 1903-4. New Hampshire's first experiment, as a state, in the treatment of her consumptives was carried on at the Pembroke Sanatorium under Dr. Fontaine's administration.

Dr. Fontaine was a man of an enthusiastic and generous nature. He had many friends, was prominent in Masonry, having attained the thirty-second degree. He put the state of New Hampshire under obligations, having established an institution, still surviving, that has a record already placing it among the most beneficent in the state. His works follow him.

HENRY RUST PARKER, M. D.

Dr. Henry Rust Parker, one of the leading physicians of his section of the state, died at his residence in Dover, N. H., December 29, 1909, from pneumonia, after about one week's illness. He had been in failing health for a year or two previous, but he was able to attend to business.

Dr. Parker was a native of the Granite State, and came of substantial English ancestry. He was born in Wolfeboro, N. H., January 4, 1836. He was educated in the public schools, and, when about twelve years of age had the misfortune to lose both of his parents, thus being thrown wholly upon his own resources. He realized the needs of a good education, and worked hard to secure the same. He soon became a student in the Wolfeboro Academy, and later his name was enrolled among the noted instructors of that institution. While performing the duties of a teacher he devoted his spare moments to the study of medicine, and later entered the medical department of Dartmouth College from which he was graduated in 1866.

He began the practice of medicine in his native town, continuing there until 1881, when he removed to Dover, N. H. Here he rapidly built up a large practice and soon occupied a high position in his profession. Dr. Parker was an able physician, and a man of great executive ability,

Digitized by Google

and his death is regretted by his brother physicians, and by a large circle of friends throughout the state.

He was examining surgeon for pensions in Strafford county under both of the administrations of President Cleveland, and he was president of the board. He was a member and ex-president of the Strafford County and District and the Dover Medical societies. He was also a meber of the New Hampshire State Medical Society. He was a member of the medical staff of the Wentworth Hospital.

Dr. Parker was chosen mayor of Dover in 1890, and was re-elected in 1891; was a member of St. Thomas' Episcopal Church, of the Northam Colonists, and of the Society of Colonial Wars of New Hampshire and Sons of the American Revolution. In Masonic circles he was quite prominent, being a thirty-second degree Mason and a past master of the Blue Lodge, and a member of St. Paul's Commandery, Knights Templar. He was one of the incorporators of the New Hampshire Genealogical Society and first vice-president of the same.

Dr. Parker was married May 27, 1866, to Miss Ella M. Thompson, of Wolfeboro, N. H., who survives him. They had three children, Nathalie S., the wife of George B. Harper, of Montreal, Canada; Alberta T., the wife of Harry P. Henderson, of Dover, N. H.; and Henry R. Parker, Jr., who died December 27, 1894, at the age of nineteen years.

JOSEPH N. LETOURNEAU, M. D.

Dr. J. N. Letourneau, who died on the thirteenth day of January, 1910, was born in St. Dominique, Canada, May 12, 1861. He was educated at Jacques Cartier Normal School of Montreal and Laval University of the same city. Dr. Letourneau left Canada in 1867 and went to the state of Maine, where he resided until 1880, then returned to Canada and remained there until he came to Laconia in July, 1893.

Digitized by Google

Digitized by Google

CHARLES F. MCGAHAN, M. D.

Digitized by Google

Dr. Letourneau has held the office of county physician and was a Knight of Pythias, a member of the Foresters of America, Catholic Foresters, Elks, Red Men, and the Amoskeag Veterans. In religion he was a Catholic. He married Clarisse Valois, August 28, 1893, and they have one child.

Dr. Letourneau became a member of the Belknap Medical Society on the day of its commencement, and a member of New Hampshire Medical Society in 1908. He was one of the most efficient practitioners among us. He was one of the kindest and most generous of our men. He would divide honors with his competitors in the profession. As a citizen he had the respect of all.

The disease of which Dr. Letourneau died was cancer in the mouth. As we saw his hope fade and despair overcome him, we all felt the severest emotion.

CHARLES F. McGAHAN, M. D.

Dr. Charles Fourgeaud McGahan was born in Charleston, S. C., July 25, 1861, and died at Aiken, S. C., February 16, 1910. His mother was Emma Fourgeaud, daughter of Arnauld Fourgeaud, and his father was Thomas R. McGahan, a native of Georgia, but for many years a prominent and leading banker, merchant and citizen, of Charleston, S. C.

Dr. Charles Fourgeaud McGahan after attending the large private school of Professor Sachleben, where he was prepared for college, entered Georgetown (D. C.) University, where he was graduated in 1881. After a short experience in the large mercantile house of McGahan, Bates & Co., of Charleston, S. C., which was invaluable to him in after life, he entered upon the study of his chosen profession under the well-known specialist in pulmonary diseases, Dr. W. H. Geddings, who took a personal interest in his studies. After attending the medical department of Dartmouth College, where he was graduated with distinc-

Digitized by Google

tion and selected as the valedictorian of his class, he spent several years in Europe visiting the hospitals of Paris, Vienna and London. Upon his return to America he spent a few seasons in Aiken establishing his health, but seeking a larger field for his practice, selected Chattanooga, Tenn., as the field of his operations. He quickly established himself and while he had a large and continually growing clientele, always found time to take an active part in the conferences of the leaders of his profession. His health failing him in Chattanooga, he was compelled, reluctantly, to abandon his practice there and move to Aiken, S. C., during the winter months and to Bethlehem, N. H., during the summer months, and in these localities he impressed his strong personality upon his friends and clients. Himself a victim to tuberculosis, he made this department of medicine his especial subject and was recognized as an expert on consumption in its manifold forms.

He was connected with the following organizations:

Director in the National Association for the Study and Prevention of Tuberculosis.

Vice-president of the Second Section of the International Congress of Tuberculosis.

Emeritus professor of anatomy at the Chattanooga Medical College.

Medical director of the Aiken Cottage Sanatorium, which he was instrumental in establishing and in which he always took the deepest interest. This sanatorium has been a boon and the cause of restoration to health of many men of moderate means.

Member of the Laryngological, Rhinological and Otological Association.

Member of the Climatological Association.

Member of the American Medical Association.

Member of the Mississippi Valley, South Carolina and Aiken County Associations.

Vice-president and director of the Bank of Western

Digitized by Google

Digitized by Google

CHARLES B. HAMMOND, M. D.

Digitized by Google

Carolina, Aiken, S. C., and interested in many enterprises for the development of that city.

CHARLES B. HAMMOND, M. D.

Dr. Charles B. Hammond, one of the most popular and best known physicians in southern New Hampshire, died very suddenly at his home in Nashua, N. H., from uremic poisoning, Friday, April 8, 1910.

Dr. Hammond, the eldest son of the late Dr. Evan B. Hammond and Sarah Ann (Adams) Hammond, was born in Nashua, March 20, 1853. Attending the public schools of Nashua, Dr. Hammond fitted himself to enter Dartmouth College in 1873, graduating from that institution in 1877 with the degree A. B., and in 1880 was awarded the degree A. M. He entered Harvard Medical School, graduating in 1880 with the degree M. D. He immediately succeeded to the office and practice of his father.

Dr. Hammond quickly attained a position at the head of his profession, both in the practice of medicine and in that of surgery. He was a man who possessed literary ability to a marked degree, and was without doubt one of the best read physicians in New Hampshire. During the later years of his practice he had made a specialty of ophthalmology and became well known in that branch of practice.

During the early years of his practice he held the office of city physician and from 1887 to 1893 served as United States pension examiner. Following that he was appointed county physician for Hillsboro county and held that office for many years. He was a member of the Nashua, the Hillsboro County and the New Hampshire State Medical Societies, the New Hampshire Surgical Club and the American Medical Association.

Fraternally he was a member of the Masons, St. George Commandery, Knights Templar, and of the New Hampshire Consistory.

Digitized by Google

On October 16, 1883, he married Miss Mary L. Tracy, daughter of the late Dr. William A. Tracy. Of four children born to them but one survives, Karl Raymond Hammond.

Of a genial and lovable disposition, democratic in his ways, he was dearly loved by all who came in contact with him.

In the death of Dr. Hammond, his brother practitioners have lost a valued friend. As one prominent physician in Nashua remarked, he was ever ready to leave his own practice, however busy he might be, to aid some other doctor in time of need.

HAVEN PALMER, M. D.

Dr. Haven Palmer died at his home in Plymouth, N. H., April 8, 1910. Dr. Palmer was a native of Jefferson, N. H., son of Lewis Jewett and Susan H. Summers Palmer.

After attending Lancaster Academy, working in a starch factory and teaching school, he began the study of medicine with Dr. John W. Barney of Lancaster, and was graduated in 1871 at Bowdoin Medical College. He practiced a short time in East Haverhill and Wentworth, N. H., and then ten years in Meredith, N. H. In 1883 he came to Plymouth, where he had been active until his death.

He married, in 1875, Lucy Jane Ellis, who with three children survives him; Bessie Frances Palmer, a teacher in New York; Dr. Harold H. Palmer of Rumney, N. H., and Doris Palmer, at present a pupil in Plymouth Normal School.

Dr. Palmer was skilful as a physician, useful as a citizen and both honest and faithful in every walk of life.

Digitized by Google

HAVEN PALMER, M. D.

Digitized by Google

Digitized by Google

LIST OF MEMBERS, 1910.

An asterisk (*) indicates a retired member.

Admitted.	Name.	Residence.
1872.	Abbott, Alfred W.,	Laconia.
1894.	Abbott, Clifton S.,	Laconia.
1899.	Abbott, Walter H.,	Hillsborough Bridge.
1894.	Adams, Chancey,	Concord.
1904.	Aldrich, Ezra Barnes,	Manchester.
1906.	Aldrich, Lewis Clarence,	Whitefield.
1888.	Aldrich, Walton H.,	Marlborough.
1886.	Allen, Bradford,	Nashua.
1878.	*Allen, Carl A.,	Holyoke, Mass.
1890.	Allen, Clarence Jean,	38 Church St., Winchester, Mass.
1886.	Allen, George E.,	Bradford, Mass.
1901.	Allen, Walter Algeno,	East Hampstead.
1909.	Allin, Fred Andrea,	Chester, Vt.
1908.	Amsden, Henry Hubbard,	Concord.
1908.	Andrews, Ezekiel Bennett,	Ossipee.
1894.	Annable, Edwin G.,	Concord.
1876.	Anthoine, Isaiah Gilman,	Nashua.
1889.	Atherton, Ella Blaylock,	Nashua.
1898.	Axtell, John Fremont,	Newton.
1910.	Babbitt, Charles H.,	Nashua.
1907.	Bailey, George S.,	Hillsborough Bridge.
1902.	Bakeman, Francis Albert,	Franklin.
1909.	Baker, Norman C.,	Nashua.
1909.	Baker, Ida Belle,	Manchester.
1896.	Baketel, Harrie S.,	622 W. 113th St., New York.
1910.	Ballard, Clarence Pressey,	Gilmanton Iron Works.
1882.	Bancroft, Charles Parker,	Concord.

Digitized by Google

1902.	Barker, Ralph Higgins,	Chester.
1894.	Bartlett, Clarence S.,	Gardner, Mass.
1909.	Bartlett, Percy,	Hanover.
1907.	Bastian, George Leon,	Manchester.
1907.	Batchelder, Edward C.,	Dover.
1908.	Bates, John Howard,	East Rochester.
1885.	Bean, J. W.,	East Medford, Mass.
1898.	Beaton, Alexander Angus,	Franklin.
1900.	Beattie, William Johnston,	Littleton.
1898.	Beauclerk, William P.,	Concord.
1908.	Beaudet, Louis Philippe,	Newmarket.
1903.	Beckford, Henry Shedd,	Belmont.
1898.	Bell, Ernest Lorne,	Plymouth.
1909.	Bennett, Harry W. N.,	Manchester.
1886.	Berry, John J.,	Portsmouth.
1909.	Berry, Nathaniel L., Jr.,	Melvin Village.
1907.	Black, James S.,	Nashua.
1878.	Blaisdell, Frank,	Goffstown.
1869.	Blaisdell, George Clark,	Contoocook.
1907.	Blake, C. A.,	West Brookfield, Mass.
1905.	Blanchard, Roscoe G.,	Dover.
1897.	Bogardus, Frank A.,	Canaan.
1879.	Boutwell, Henry T.,	Manchester.
1883.	Boutwell, Henry Winslow,	Manchester.
1907.	Bowker, Charles Harvey,	1300 Massachusetts Ave., Washington, D. C.
1909.	Bowler, John William,	Hanover.
1909.	Boynton, Harry Hollister,	Lisbon.
1909.	Brien, Augustus A. E.,	Manchester.
1888.	Brigham, Frank E.,	Salmon Falls.
1909.	Brooks, Robert H.,	Claremont.
1897.	Brown, Elmer F.,	Groveton.
1909.	Brown, Hurbert Leslie,	Hinsdale.
1909.	Brown, Lester Rupert,	Winchester.
1900.	Brownrigg, Albert E.,	Nashua.
1907.	Bryar, Fred Elmer,	Whiteface.

Digitized by Google

1907.	Buckley, James Joseph,	Milton.
1908.	Bugbee, Marion L.,	Concord.
1909.	Bullock, Lillian Gertrude,	Manchester.
1856.	Burnham, Hosea B.,	Manchester.
1894.	*Burnham, John Loring,	Las Cruces, New Mexico.
1884.	Burns, Robert,	West Newton, Mass.
1909.	Burtt, Edward Daniel,	North Woodstock.
1909.	Buswell, Albert Currier,	Epping.
1906.	Butterfield, Clarence E.,	Suncook.
1893.	Buzzell, Charles P.,	Conway.
1910.	Cain, J. Leavitt,	Newport.
1906.	Carleton, Elmer Howard,	Manchester.
1910.	Caron, Dumas,	Laconia.
1899.	Carpenter, Harry B.,	Lancaster.
1892.	Carpenter, Irving Lloyd,	Manchester.
1902.	Carr, Burt Wilber,	Pittsfield.
1879.	Carvelle, Henry DeWolfe,	Manchester.
1902.	Charest, Joseph C. B.,	Derry.
1907.	Chase, Daniel Robert,	Lebanon.
1907.	Chase, Ezra Clark,	Plymouth.
1907.	Cheever, Nathaniel F.,	Greenfield.
1891.	Cheney, Jonathan M.,	Ashland.
1903.	Chesley, Alice M. M.,	Exeter.
1905.	Chesley, Harry O.,	Dover.
1906.	Childs, Alfred Henry,	Dublin.
1908.	Chirurg, Charles,	Manchester.
1899.	Claggett, Fred Porter,	Newport.
1892.	Clark, Edgar A.,	Concord.
1907.	Clark, W. E., Jr.,	Lempster.
1906.	Clarke, George Haven,	Concord.
1907.	Clow, Fred Ellsworth,	Wolfeboro.
1897.	Cobb, Joseph J.,	Berlin.
1909.	Coburn, Clarence O.,	Manchester.
1876.	Cogswell, John R.,	Warner.
1908.	Cogswell, Lloyd H.,	Warner.
1902.	Cogswell, Samuel J.,	Derry.

Digitized by Google

1909.	Colcord, Daniel Webster,	Seabrook.
1897.	Cole, Cheney Isaac,	Henniker.
1902.	Congdon, Charles Everett,	Nashua.
1865.	Conn, Granville P.,	Concord.
1899.	Cook, Charles Henry,	Concord.
1909.	Cook, Edwin A.,	Colebrook.
1869.	Cook, George,	Concord.
1905.	Cooke, T. Bates,	Laconia.
1902.	Coolidge, John W.,	Bristol.
1909.	Corliss, Oscar Luzerne,	Mt. Vernon.
1909.	Corning, Peter W. F.,	Goffs Falls.
1898.	Cotton, Curtis B.,	3 Lewis St., Lynn, Mass.
1909.	Coutu, Joseph Edward,	Claremont.
1897.	Craig, James A.,	Westmoreland.
1908.	Craig, Willis Parker,	Walpole.
1900.	Crosby, Walter Theodore,	Manchester.
1897.	Crossman, Edgar O.,	Lisbon.
1873.	Currier, David M.,	Newport.
1882.	Currier, Edward H.,	Manchester.
1909.	Curtiss, Charles Lester,	Manchester.
1909.	Cushman, Earl Percy,	Claremont.
1897.	Cutler, Charles Henry,	Peterborough.
1873.	Cutler, George I.,	West Swanzey.
1878.	Danforth, Mary,	Manchester.
1890.	Davis, George Moses,	Manchester.
1901.	Davis, Samuel Wilbert,	Sanbornville.
1890.	Day, Arthur Kehew,	Concord.
1899.	Day, Herbert Christopher,	Exeter.
1895.	Dean, Elmer E.,	Lebanon.
1876.	Dearborn, Darius Stearns,	Milford.
1906.	Dearborn, Edmund G.,	Antrim.
1908.	Dearborn, John H.,	83 Bridge St., Salem, Mass.
1907.	Dearborn, Luther G., Jr.,	Northfield, R. F. D., Franklin.

Digitized by Google

1899.	Dearborn, Samuel S.,	Nashua.
1910.	Deaudelin, Alfred,	Somersworth.
1909.	DeGross, John H.,	Bath.
1908.	Dennison, Raymond C.,	Berlin.
1869.	Dinsmoor, Silas M.,	Keene.
1902.	Dolloff, Albert Simeon,	New Hampton.
1905.	Dolloff, Charles Hall,	Concord.
1896.	Dougherty, Thomas J.,	Somersworth.
1899.	Douglas, Orlando B.,	Concord.
1910.	Dow, Jessie A.,	Claremont.
1910.	Dowlin, Winfred Mason,	Claremont.
1905.	Downing, Arthur,	Littleton.
1883.	Drake, Charles B.,	West Lebanon.
1897.	Drake, Ervin Thayer,	Franklin.
1904.	Drew, John A.,	Rumney.
1897.	Dunbar, Eugene B.,	Manchester.
1905.	Duncan, Charles,	Concord.
1897.	Eastman, Charles Albert,	Winchester.
1904.	Eastman, Eugene Bruce,	Portsmouth.
1883.	Eastman, Oliver Davis,	Woodsville.
1906.	Easton, Frank Birch,	Laconia.
1879.	Eaton, Frank,	East Weare.
1907.	Emerson, George Short,	Fitzwilliam.
1889.	Erskine, James B.,	Tilton.
1900.	Evans, Frank W.,	Coös.
1878.	Fairbanks, Charles A.,	Dover.
1890.	Faulkner, Herbert K.,	Keene.
1909.	Fellows, George Roberts,	Seabrook.
1910.	Ferguson, Samuel T.,	North Weare.
1901.	Fernald, Arthur May,	Sutton.
1902.	Fernald, Fred,	Nottingham.
1906.	Finerty, Joseph William,	Milford.
1883.	Fisher, Edwin C.,	Sunapee.
1883.	Fisher, Franklin Pierce,	Enfield Centre.
1901.	Fiske, George Varnum,	Manchester.
1907.	Fitch, Emery Moore,	Claremont.

Digitized by Google

1883.	Flanders, Charles F.,	Manchester.
1896.	Flanders, Louis W.,	Dover.
1896.	Flanders, Marietta E. M.,	Hopkinton.
1910.	Folsom, Charles Albert,	Manchester.
1909.	Foss, George H.,	Hinsdale.
1902.	Foster, Avery Moulton,	Candia.
1908.	Foster, George S.,	Manchester.
1907.	Fowler, Fred Abram,	Hill.
1897.	Fowler, Isaac Newton,	Lebanon.
1908.	Fraser, Samuel,	Wentworth.
1885.	French, Edward,	Harding Mass.
1875.	French, L. Melville,	Manchester.
1893.	Fritz, Emdon,	Manchester.
1893.	Frost, Gilman DeBois,	Hanover.
1899.	Gallinger, Ralph Ernest,	Concord.
1887.	Garland, William Russell,	Plymouth.
1897.	George, Arthur Phillips,	Haverhill, Mass.
1909.	Gerald, Francis Leverett,	Warren.
1901.	Getchell, Stillman P.,	Wolfeboro.
1881.	Gibson, Charles Reed,	Woodsville.
1898.	Gibson, John Mitchell,	McIndoes Falls, Vt.
1909.	Gilbert, Oscar B.,	Concord.
1898.	Gile, John Martin,	Hanover.
1899.	Gilman, Charles Sleeper,	Warren Chambers, 419 Boylston St., Boston, Mass.
1902.	Gilman, Louis Lincoln,	Rochester.
1896.	Gleason, John Hiram,	Manchester.
1865.	Goodhue, David Putney,	West Springfield.
1885.	Gould, Charles Reade,	Tilton.
1883.	Gove, George Sullivan,	Whitefield.
1897.	Grafton, Frank Willard,	Concord.
1908.	Graham, George Sellers,	Hanover.
1904.	Grant, Albert Ernest,	Durham.
1883.	Grant, Lindsey E.,	Somersworth.
1908.	Gravel, John M. A.,	Derry.

Digitized by Google

1869.	Graves, Eli E.,	Penacook.
1905.	Graves, Robert John,	Concord.
1909.	Gray, C. A.,	Hinsdale.
1890.	Gray, George H.,	26 Ocean St., Lynn, Mass.
1893.	Greeley, Guy Hastings,	Merrimack.
1893.	Greeley, James Thornton,	Nashua.
1901.	Greeley, Philip H.,	Farmington.
1903.	Griffin, Nathan LeRoy,	New London.
1894.	Grimes, Warren P.,	Hillsborough.
1907.	Gross, Charles William,	Milton Mills.
1909.	Guerin, Moise,	Manchester.
1897.	Guertin, Auguste,	Nashua.
1897.	Guillet, Noel E.,	Manchester.
1892.	Guptill, George Herbert,	Raymond.
1901.	Hale, William,	Gloucester, Mass.
1909.	Ham, John Randolph,	Malabar, Fla.
1904.	Hanaford, Howard A.,	Newport.
1904.	Hannaford, Charles W.,	Portsmouth.
1863.	Hanson, Caleb W.,	Northwood Ridge.
1888.	Harriman, Alpha H.,	Laconia.
1900.	Harrington, Charles W.,	Peterborough.
1899.	Hart, Malcolm A. H.,	Milton.
1910.	Harwood, Blake A. T.,	Exeter.
1902.	Haskell, Pearl Tenney,	Concord.
1880.	Hatch, George Winsor,	Wilton.
1888.	Hawkins, Frederick L.,	Meredith.
1880.	Hawley, George H.,	Barnstead.
1887.	Hayes, John Alfred,	Somersworth.
1895.	Hazard, George S.,	Hollis.
1885.	Hazelton, George W.,	Haverhill.
1893.	Heffenger, Arthur C.,	Portsmouth.
1909.	Higgins, Clifford E.,	Wilton.
1909.	Hight, Clarence Eugene,	Groveton.
1909.	Hildreth, Lewis George,	Marlborough.

Digitized by Google

1894.	Hill, Edmund E.,	Suncook.
1896.	Hill, Gardner C.,	Keene.
1890.	Hill, Roscoe,	Epsom.
1897.	Hills, Frederick L.,	Bangor, Me.
1909.	Hinds, W. H. W., Jr.,	Milford.
1905.	Hoag, Albert Buffum,	Center Sandwich.
1892.	Hodgdon, Edwin P.,	Lakeport.
1900.	Hodsdon, B. Franklin,	Manchester.
1888.	Hodsdon, Ervin Wilbur,	Mountain View.
1902.	Hoitt, George Barnard,	Manchester.
1872.	Holbrook, Guy,	295 Central St., Lowell, Mass.
1885.	Holbrook, Henry Carroll,	Penacook.
1888.	Holcombe, Charles Henry,	Brookline.
1910.	Holmes, John Franklin,	Manchester.
1907.	Hopkins, Arthur W.,	West Swanzey.
1906.	Horne, B. Frank,	Conway.
1886.	Houghton, Edward F.,	Tilton.
1910.	Howland, Clifford,	Bradford.
1910.	Hoyt, Parke Rowe,	Lakeport.
1910.	Hubbard, O. H.,	Gilsum.
1906.	Huckins, John Calvin,	Ashland.
1903.	Huckins, Theron Howard,	Tilton.
1889.	Humiston, Franklin G.,	East Jaffrey.
1882.	Hutchinson, Herbert S.,	Milford.
1890.	Hyland, Jesse Burdette,	Keene.
1892.	Ingalls, George H.,	Jamaica Plain, Mass.
1884.	Jarvis, Leonard,	Claremont.
1898.	Johnson, Hiram Leonard,	Franconia.
1899.	Johnston, Charles E.,	Portsmouth.
1899.	Jones, Edwin E.,	Colebrook.
1909.	Jones, Ezra Albert,	Manchester.
1883.	Jones, Fred P.,	Mill Village.
1887.	Jones, Frederic W.,	New Ipswich.
1897.	Jones, Seth Warner,	Franklin Falls.
1909.	Junkins, William O.,	Portsmouth.

Digitized by Google

1891.	Kean, Michael Edward,	Manchester.
1904.	Keay, Forest L.,	Rochester.
1905.	Keene, Linwood M.,	Dover.
1907.	Kelso, Walter Lamson,	Hillsborough Bridge.
1904.	Kenniston, William B.,	Exeter.
1886.	Kimball, George Morrill,	Concord.
1860.	*Kingsbury, C. F.,	West Medford, Mass.
1898.	Kingsford, Howard N.,	Hanover.
1890.	Kittredge, Frank E.,	Nashua.
1897.	Knapp, Lee Victor,	Danbury.
1905.	Knowlton, John G. W.,	Exeter.
1906.	Lacasse, Leon Joseph,	Manchester.
1908.	Lachaine, Edmond,	Hinsdale.
1909.	Ladd, Samuel Tilden,	Portsmouth.
1908.	Lafontaine, Gustave,	Manchester.
1907.	La France, Albert Joseph,	Laconia.
1893.	Lake, Elmer Ellsworth,	Hampstead.
1892.	Lamson, Charles Allen,	Elkins.
1902.	Lance, Arthur Joseph,	Portsmouth.
1910.	Landers, George B.,	Concord.
1909.	Landman, Elbert Alonzo,	Plaistow.
1882.	Lanouette, Joseph E. A.,	Manchester.
1908.	Larochelle, Joseph E.,	Manchester.
1876.	Lathrop, Moses Craft,	Dover.
1909.	Lavalée, Arsene,	Berlin.
1898.	Lavallee, Arthur M.,	Suncook.
1909.	Lavoie, Zenon Annable,	Manchester.
1903.	Lawrence, William E.,	North Haverhill.
1910.	Leduc, Napoleon,	Somersworth.
1884.	Leet, George E.,	Concord.
1891.	Leet, James Andrew,	Enfield.
1909.	Leith, Harry W.,	Haverhill.
1889.	Leith, William H.,	Lancaster.
1885.	Lemaitre, Joseph E.,	Manchester.
1904.	Little, Charles S.,	Thiells, N. Y.
1895.	Littlefield, Anna Maria,	New London.

Digitized by Google

1909.	Lobdell, Alban Judson,	Winchester.
1902.	Locke, Eva M.,	Nashua.
1907.	Lord, Lester Winslow,	West Ossipee.
1887.	Lougee, George W.,	Freedom.
1906.	Lovejoy, Frank Howard,	Milford.
1909.	Loveland, Israel Albert,	Keene.
1901.	Lovering, Frank Samuel,	Moultonborough.
1909.	Lowe, Ernest Whittier,	Fremont.
1899.	Luce, Thomas W.,	Portsmouth.
1891.	Lyons, William H. A.,	Manchester.
1899.	Macleay, A. Alexander,	Manchester.
1909.	Macdonald, John B.,	Concord.
1909.	Marble, Henry,	Gorham.
1908.	Marcou, Louis B.,	Berlin.
1895.	Marden, Albion Sullivan,	Newport.
1909.	McGee, Edward R. B.,	Berlin.
1888.	McGregor, George W.,	Littleton.
1909.	McLachlan, Donald C.,	Greenland.
1897.	McLaughlin, Frank W.,	West Stewartstown.
1909.	McLaughlin, Patrick J.,	Nashua.
1892.	McMurphy, Nelson W.,	So. Burlington, Vt.
1887.	Megrath, William A.,	Loudon.
1888.	Merrill, John F.,	Warner.
1904.	Miller, Elmer Manton,	Woodsville.
1903.	Milliken, Clarence M.,	Manchester.
1892.	Mitchell, Abram W.,	Epping.
1895.	Mitchell, William H.,	Loudon.
1907.	Moody, Harry Alton,	Sanbornville.
1883.	Moran, Benjamin George,	Nashua.
1891.	Morey, Gustavus B.,	Manchester.
1909.	Morgan, Field Chilson,	Claremont.
1892.	Morgan, George Prentiss,	Dover.
1893.	Morrill, Leonard B.,	Center Harbor.
1898.	Morrill, Sibley Gage,	Concord.
1906.	Morrisson, G. H.,	Whitefield.
1882.	Morse, Charles A.,	Newmarket.
1909.	Morse, Harry Martin,	Claremont.

Digitized by Google

1909.	Mousley, Bayard T.,	Alstead.
1910.	Mullen, Seth Smith,	Bartlett.
1909.	Mulvanity, Albert F.,	Nashua.
1883.	Munsey, George F.,	Suncook.
1899.	Murray, John Thomas,	Manchester.
1909.	Musson, William R.,	Antrim.
1897.	Mygatt, Harry Edwin,	Nashua.
1892.	Nason, Inez Ford,	Dover.
1898.	Neal, John H.,	Portsmouth.
1897.	Newcombe, Vesley M.	Somersworth.
1910.	Newell, Charles Edward,	Derry.
1905.	Newell, Henry Ward,	Manchester.
1907.	Newton, Ethel Mitchell,	Concord.
1873.	Nichols, C. B.,	719 Grant Bldg., Los Angeles, Cal.
1881.	Nute, William Herbert,	Exeter.
1897.	Nutter, Charles F.,	Nashua.
1905.	Ober, Charles F.,	Manchester.
1883.	O'Brion, Charles C.,	Groveton.
1909.	O'Connor, John C.,	Manchester.
1909.	O'Doherty, John D.,	Dover.
1900.	Oliver, Robert Freeman,	Enfield.
1901.	Osterhout, John Jacob,	Keene.
1881.	Otis, Edward Osgood,	381 Beacon St., Boston, Mass.
1907.	Page, John Marshall,	Littleton.
1905.	Parker, David W.,	Manchester.
1868.	Parsons, John W.	Portsmouth.
1910.	Parsons, William M.,	Manchester.
1909.	Pattee, John Ralph,	Dover.
1880.	Pattee, William H.,	Manchester.
1897.	Patterson, Charles F.,	Rye.
1895.	Pease, Byron Douglass,	Greenville.
1908.	Pender, George Edward,	Portsmouth.
1879.	Perkins, Frank B.,	West Derry.
1901.	Perkins, Frederick,	Manchester.
1889.	Petit, A. Wilfred,	Nashua.

Digitized by Google

1884.	Pettingill, James B.,	Amherst.
1910.	Pherson, Frank J.,	Manchester.
1897.	Phipps, Albert G.,	Gorham.
1909.	Pierce, George W.,	Winchester.
1893.	Pitman, Arthur John,	Candia.
1906.	Pratte, Arthur A.,	Keene.
1903.	Proctor, John Donald,	Keene.
1909.	Proctor, John Harvey,	Milford.
1883.	Prouty, Ira Joslin,	Keene.
1904.	Provost, Azarie, M. J.,	Berlin.
1909.	Pulsifer, Tappan Chase,	Berlin.
1894.	Quackenbos, John D.,	331 W. 28th St., New York.
1908.	Quimby, John Grant,	Lakeport.
1900.	Quinn, Charles Henry,	West Concord.
1910.	Randall, Harriet N.,	Claremont.
1907.	Reed, William Edward,	Nashua.
1909.	Reynold, Thomas O.,	Kingston.
1907.	Richard, Joseph Henry,	Dover.
1909.	Richardson, William,	Londonderry.
1890.	Richmond, Allen P.,	Dover.
1907.	Robb, William M.,	Boston, Mass.
1909.	Robbins, Elwin D.,	Nashua.
1909.	Roberts, James S.,	Hinsdale.
1857.	*Roberts, Samuel W.,	Wakefield.
1887.	Robinson, J. Franklin,	Manchester.
1909.	Rock, Timothy F.,	Nashua.
1901.	Rogers, Charles C.,	Farmington.
1908.	Rogers, Frank Norwood,	Manchester.
1904.	Rowe, Walter Cilley,	Andover.
1909.	Russell, Ai Stephen,	Rumney.
1888.	Saltmarsh, George H.,	Lakeport.
1884.	*Sanborn, C. A.,	Redlands, Cal.
1880.	Sanborn, George Hoitt,	Henniker.
1902.	Sanders, Henry Clay, Jr.,	Claremont.
1900.	Sanders, Loren A.,	Concord.

Digitized by Google

1908.	Sargent, Frank H.,	Pittsfield.
1909.	Sasseville, Nicholas,	Manchester.
1910.	Scott, Mark E.,	Portsmouth.
1887.	Scott, Nathaniel H.,	Wolfeborough.
1890.	Shea, Augustus W.,	Nashua.
1881.	Shedd, George H.,	North Conway.
1901.	Shedd, John Z.,	North Conway.
1909.	Sherburne, Andrew B.,	Portsmouth.
1897.	Sikorsky, Vladimir N.,	Salem.
1888.	Smith, Arthur Noel,	Dover.
1902.	Smith, Charlotte S.,	Manchester.
1893.	Smith, Frank A.,	Lebanon.
1888.	Smith, Henry O.,	Hudson.
1899.	Smith, Herbert L.,	Nashua.
1909.	Smith, Marvin F.,	Hampton.
1902.	Smith, William Eugene,	Franklin.
1908.	Sneden, Claude M.,	Littleton.
1907.	Snow, Samuel Dryden,	Conway.
1888.	*Spaulding, F. W.,	Clifton Springs, N. Y.
1909.	Spear, Frank E.,	Lisbon.
1907.	Sprague, Fred Alvah,	Concord.
1892.	Stackpole, Harry Hills,	
1882.	Staples, John Walter,	Franklin Falls.
1907.	Stark, Maurice Albert,	Goffstown.
1899.	Stearns, Henry C.,	Concord.
1908.	Steele, Eugene Gillis,	North Conway.
1891.	Steele, Minot A.,	Portsmouth, R. I.
1909.	Stetson, Harry W.,	Orford.
1891.	Stevens, Jane E. Hoyt,	Concord.
1909.	Stevens, Parker B.,	Phoebus, Va.
1895.	Stickney, Henry Ladd,	Manchester.
1875.	Stillings, Ferdinand A.,	Concord.
1890.	Stokes, Dudley Leavett,	Rochester.
1880.	Stone, Melvin T.,	Troy.
1891.	Straw, Amos Gale,	Manchester.
1892.	Straw, Zatae Longsdorff,	Manchester.

Digitized by Google

1876.	Sturtevant, Charles B.,	Manchester.
1891.	Sullivan, Dennis Edward,	Concord.
1905.	Sullivan, Miah B.,	Dover.
1903.	Sumner, Arthur F.,	Manchester.
1909.	Sweeney, Frederick C.,	East Jaffrey.
1892.	Sweeney, Henry L.,	Kingston.
1910.	Sweeney, John L.,	Dover.
1909.	Sweeney, Mary Agnes,	Nashua.
1894.	Swett, Eddy Benjamin,	Grasmere.
1898.	Sylvain, Emile August,	Manchester.
1898.	Taft, Edward Harvey,	Milford.
1903.	Talbott, Bertell Lavoy,	Peterborough.
1905.	Tarbell, Wallace Henry,	Contoocook.
1905.	Taylor, Herbert Leonel,	Portsmouth.
1897.	Taylor, Joseph,	West Manchester.
1897.	Thèriault, Joseph,	Concord.
1909.	Thèriault, Joseph Horace,	Claremont.
1903.	Thompson, Edward H.,	Hampton.
1910.	Thompson, Howard E.,	Bethlehem.
1906.	Thompson, Wellington A.,	Manchester.
1893.	*Thurber, M. T.,	95 Savin Hill Ave., Boston, Mass.
1897.	Tobel, Frederic Von,	Lebanon.
1909.	Tobey, Fred Chamberlain,	Wolfeboro.
1909.	Togus, Leopold T.,	Hooksett.
1902.	†Togus, Theodore M.,	Hooksett.
1877.	Tolles, Clarence Weston,	Claremont.
1904.	Tolman, George Averill,	Dover.
1895.	Towle, Fred Scates,	Portsmouth.
1890.	Towle, George Henry,	Deerfield.
1909.	Towle, George Henry, Jr.,	Newmarket.
1878.	Towne, George Dana,	Manchester.
1904.	Toye, John E.,	Charlestown.

† Died July, 1910.

Digitized by Google

1907.	Tracy, Edward Andrew,	Keene.
1909.	Tremblay, Evariste C.,	Manchester.
1904.	True, Walter H.,	Laconia.
1904.	Tuttle, Walter,	Exeter.
1909.	Twombly, Edward E.,	Colebrook.
1902.	Underwood, David G.,	Bradford.
1909.	Upham, Samuel Rice,	Claremont.
1908.	Vallee, John Edward,	Lebanon.
1898.	Varick, William Remsen,	Concord.
1909.	Varney, Albert H.,	Newfields.
1880.	Wade, Edric Allan,	Salem Depot.
1878.	Walker, Charles Rumford,	Concord.
1901.	Walker, Charles Sidney,	Keene.
1904.	Walker, Wallace D.,	Portsmouth.
1893.	Wallace, Alonzo S.,	Nashua.
1904.	Wallace, Arthur L.,	Nashua.
1886.	Wallace, Ellen Alfleda,	Manchester.
1909.	Warden, John B.,	Whitefield.
1904.	Warner, Franklin George,	Newport.
1894.	Wason, Eugene,	Milford.
1885.	Watson, George Marshall,	Manchester.
1879.	Watson, Irving Allison,	Concord.
1901.	Watson, Maurice,	Manchester.
1887.	Way, Osman B.,	Claremont.
1883.	Weaver, Charles Albert,	New Boston.
1899.	Weaver, George Albert,	Warren.
1909.	Webb, Rollin Edward,	Lancaster.
1904.	Webber, Norman B.,	Manchester.
1908.	Weeks, Frank Sherman,	Milton Mills.
1905.	Weeks, William Rufus,	Manchester.
1898.	Wellner, Hermann,	4506 Champlain Ave., Chicago, Ill.
1909.	Weston, Arthur Francis,	Keene.
1882.	Weymouth, George W.,	Lyme.
1894.	Wheat, Arthur Fitz,	Manchester.
1899.	Wheeler, John,	Plymouth.

Digitized by Google

1905.	Whitcomb, Charles S. F.,	Contoocook.
1910.	Whitney, H. R.,	Northwood.
1909.	Wiggin, Henry M.,	Whitefield.
1909.	†Wight, Edward M.,	Gorham.
1902.	Wilder, Richard Edward,	Whitefield.
1903.	Wilkins, George C.,	Manchester.
1896.	Wilkins, Russell,	Concord.
1910.	Williams, Harry George,	Gilsum.
1904.	Woodman, James B.,	Franklin Falls.
1883.	Woodward, Josiah N.,	Nashua.
1909.	Worcester, Frank D.,	Keene.
1904.	Worthen Eugene Mark,	Ashland.
1910.	Wyatt, B. L.,	Tilton.
1879.	Young, Leyander J.,	Haverhill, Mass.
1896.	Young, Oscar Cummings,	Charlestown.
1909.	Young, Stephen,	Dover.

HONORARY MEMBERS.

1903.	Barnard, H. E., B. S., Indianapolis, Ind.
1898.	Bartlett, Edwin J., M. D., Hanover.
1887.	Billings, John S., M. D., New York.
1900.	Cheever, David W., M. D., Boston, Mass.
1908.	Child, William, M. D., Highland Spring, Va.
1900.	Coit, J. Milnor, Ph. D., Munich, Germany.
1900.	Cumston, Charles G., M. D., Boston, Mass.
1900.	Gay, George W., M. D., Boston, Mass.
1907.	Howard, Charles D., B. S., Concord.
1908.	Lamb, Frank W., M. D., Portland, Me.
1907.	Lund, Fred B., M. D., Boston, Mass.
1900.	Richardson, Maurice H., M. D., Boston, Mass.
1906.	Williamson, W. D., M. D., Portland, Me.

† Died, June 10, 1910.

Digitized by Google

INDEX.

	PAGE.
Officers for 1910-1911	3
Councilors	3
Trustees	4
House of Delegates	4
Board of Medical Examiners	5
Delegates:	
American Medical Association	5
State Societies	5
Necrologist	6
Anniversary Chairman	6
Committees:	
Scientific Work	6
Public Policy and Legislation	6
Publication	6
Arrangements	7
History of Medicine in New Hampshire	7
Expert Medical Testimony	7
Proceedings	8
House of Delegates	14
Reports:	
Secretary	15
Treasurer	16
Committee on Public Policy and Legislation	18
Affiliation	19
History of the New Hampshire Medical Society	20
Scientific Program	21
Publication	22
Expert Medical Testimony	22
Trustees	27
Councilors	29
Delegates to Dartmouth Medical College	33
Board of Medical Examiners	34
Necrologist	37
Council	38

Digitized by Google

PAGE.

Registration 39
Banquet 44
President's Address, by Frank Blaisdell, M. D..... 45
Alcoholism, by Harry E. Mygatt, M. D..... 72
Discussion opened by Abram W. Mitchell, M. D..... 108
continued by James B. Woodman, M. D..... 109
Dr. Staples, M. D..... 110
closed by Harry E. Mygatt, M. D..... 111
Incipient Pulmonary Tuberculosis: Diagnosis and Treatment, by P. Challis Bartlett, M. D..... 112
Discussion opened by John M. Gile, M. D..... 121
closed by Samuel R. Upham, M. D..... 124
Preventive Medicine and its Relation to Foreign Immigration, by George S. Foster, M. D..... 127
The Use of Fat-Free Milk in Infant Feeding, by H. H. Amsden, M. D..... 147
Discussion opened by Harry W. N. Bennett, M. D..... 156
closed by Marion L. Bugbee, M. D..... 158
Some Evolutionary Aspects of the Vermiform Appendix, by John H. Bates, M. D..... 160
Discussion opened by John H. Neal, M. D..... 165
closed by Dr. Bates..... 166
Conservative Surgery, by Alpha H. Harriman, M. D..... 167
Discussion opened by Ferdinand A. Stillings, M. D..... 178
A Method of Anesthetizing to be Employed in Operating on the Aged, by John H. Gleason, M. D..... 181
Discussion opened by Alonzo Wallace, M. D..... 192
closed by George S. Foster, M. D..... 193
Address Delivered to the Members of the Graduating Class of 1910, Dartmouth Medical School, by A. C. Heffenger, M. D. 196
Asthma, in Relation to the Nose, by Thomas W. Luce, M. D.... 201
Discussion opened by Charles C. Rogers, M. D..... 208
closed by Frank E. Kittredge, M. D..... 208
Nephritis, by Frank B. Easton, M. D..... 210
State Board Examinations, by George Cook, M. D..... 218
Discussion by George H. Shedd, M. D..... 223
The Treatment of Inoperable Sarcoma with Bacterial Toxins, by William B. Coley, M. D..... 225
Discussion opened by George C. Wilkins, M. D..... 264
continued by G. W. McGregor, M. D..... 267
closed by W. H. Leith, M. D..... 268
Immunity, with Special Reference to Vaccine Therapy, by Timothy Leary, M. D..... 269

Digitized by Google

PAGE.
Discussion opened by Howard N. Kingsford, M. D..... 285
closed by William H. Leith, M. D..... 287
Reports of County Societies:
Rockingham County..... 288
Strafford County..... 289
Belknap County..... 290
Carroll County..... 290
Centre District and Merrimack County..... 291
Hillsborough County..... 292
Cheshire County..... 293
Sullivan County..... 295
Grafton County..... 297
Coos County..... 298
Obituaries:
Clarence M. Dodge, M. D..... 300
John W. Pray, M. D..... 302
William T. Smith, M. D..... 302
Leyander J. Young, M. D..... 304
Charles F. George, M. D..... 305
Charles H. Burnham, M. D..... 306
Henri T. Fontaine, M. D..... 307
Henry Rust Parker, M. D..... 309
Joseph N. Letourneau, M. D..... 310
Charles F. McGahan, M. D..... 311
Charles B. Hammond, M. D..... 313
Haven Palmer, M. D..... 314
List of Members, 1910..... 315

SEP 1921

Digitized by Google

Digitized by Google